

59-581356

SF 61

P.A.L. 58135



PERKINS
AGRICULTURAL LIBRARY

UNIVERSITY COLLEGE
SOUTHAMPTON





TREATISE
ON THE
BREEDING AND MANAGEMENT
OF
LIVE STOCK:

COMPRISING

CATTLE,.....	DEER,
SHEEP,.....	GOATS,
HORSES,.....	RABBITS,
ASSES,.....	POULTRY,
MULES,.....	BEEES,
PIGS,.....	FISH,
&c. &c. &c.	

IN WHICH THE
PRINCIPLES AND PROCEEDINGS

OF THE
New School of Breeders
ARE FULLY AND EXPERIMENTALLY DISCUSSED.

TO WHICH ARE ADDED
*Directions for making Butter and Cheese, curing Hams,
pickling Pork and Tongues, preserving Eggs, &c. &c.*

WITH
AN APPENDIX,

CONTAINING
Tables of Prices in the Live and Dead Markets, some extraordinary
Sales of Cattle and Sheep, and other Particulars.

THE WHOLE
*Interspersed with various Information of Importance to Breeders,
Graziers, Farmers, and the Public at large.*

IN TWO VOLUMES.—VOL. II.

ELUCIDATED BY EIGHT COPPER-PLATES, AND
SEVERAL ENGRAVINGS ON WOOD.

BY RICHARD PARKINSON,
Author of "THE EXPERIENCED FARMER," "THE ENGLISH FARMER IN
IRELAND," "A TOUR IN AMERICA," &c. &c.

L O P D D P:

PRINTED FOR CADELL AND DAVIES, STRAND;
AND R. SCHOLEY, PATERNOSTER-ROW.

1810.

Printed by T. DAVISON, Lombard-street, Whitefriars, London.

CONTENTS

OF THE SECOND VOLUME.

CHAPTER II. (continued).

S H E E P.

	Page
SECTION 21. <i>WOOL of different Breeds of Sheep, the average and greatest Weight, long and short, distinguished by Districts</i>	2
Section 22. <i>Remarks on different Kinds of Wool</i>	8
Section 23. <i>Some Information concerning the Properties of Wool</i>	37
Section 24. <i>Lord Somerville's Sheep</i>	42
Section 25. <i>Sheep Washing and Shearing; some necessary Precautions to be observed in those Proceedings</i>	44
Section 26. <i>Pelts of different Kinds of Sheep, their Value, and the improved Uses to which they are appropriated</i>	49

CHAPTER III.

H O R S E S.

Section 1. <i>Breeding Horses; necessary Precautions in the Choice of Brood-mares</i>	54
Section 2. <i>Castrating Colts</i>	74
Section 3. <i>Breaking of young Horses, &c.</i>	78
Section 4. <i>Race-horses.—Description; Shape necessary; requisite Attention in Breeding and Training; experimental Remarks relative to Stallions and Mares producing as good Stock at advanced Ages as when younger—an observation worth notice, as many persons are of a contrary opinion</i>	84

CONTENTS.

	Page
Section 5. <i>Hunting-horse.—Description ; the proper Breed ; Feeding and Training</i>	95
Section 6. <i>Road-horse.—Description ; particular Action necessary for the Ease and Safety of the Rider</i>	104
Section 7. <i>Bay Coach-horse, or Yorkshire Horse.—Description</i>	105 (108)
Section 8. <i>Dray-horse.—Description ; Situations in which he is bred to Perfection ; his Use, &c.</i>	114
Section 9. <i>Waggon-horse, to travel Stages</i>	126
Section 10. <i>Suffolk-punch.—Shape ; some probable Reasons why said to plough more Land in a given Time than any other Horse of equal Weight</i>	127
Section 11. <i>Poney, or Little Horse.—Wildmoor fen Poney</i>	134
Section 12. <i>Welsh Poney.—Description and Perfections</i>	138
Section 13. <i>Scotch Poney.—Description and Use</i>	141
Section 14. <i>Shetland Poney.—Description</i>	142
Section 15. <i>To know the Age of Horses</i>	143
Section 16. <i>Names of Horses at the different Periods of their Age,</i>	144
Section 17. <i>Remarks necessary in the Choice of Horses, especially for the Road</i>	145
Section 18. <i>Instructions for breeding Horses most proper for Husbandry ; their Shape and Action</i>	147
Section 19. <i>Feeding Horses for Husbandry</i>	154
Section 20. <i>Feeding Horses in America</i>	156
Section 21. <i>Feeding soiling Horses during the Summer</i>	160
Section 22. <i>Method of treating Horses for Husbandry in Winter, on a much better and cheaper Plan than is usually practised</i>	168
Section 23. <i>Giving Mares the Horse</i>	176
Section 24. <i>Method of shoeing Horses in the most proper Manner,</i>	180
Section 25. <i>Corns in Horses' Feet, Cause of, and Cure</i>	185
Section 26. <i>Disorders in Horses, with several approved Remedies,</i>	188

CHAPTER IV.

MULE.

<i>Description, Breed, and Use</i>	216
--	-----

CONTENTS.

CHAPTER V.

ASS OR DONKEY.

	Page
<i>Description, Use, &c.</i>	221

CHAPTER VI.

HOGS.

<i>The most valuable Kinds, with the best Methods of breeding and rearing</i>	224
Section 1. <i>The Boar</i>	ibid.
Section 2. <i>Explanation, and Reasons given for the perfect Make of a Hog</i>	226
Section 3. <i>Different Breeds of Hogs</i>	228
Section 4. <i>Names of Pigs</i>	268
Section 5. <i>Use of Pigs in Fold-yards</i>	ibid.
Section 6. <i>Sties proper for fattening Pigs</i>	272
Section 7. <i>Disorders, or Diseases, in Pigs</i>	274
Section 8. <i>Curing Bacon, &c.</i>	276

CHAPTER VII.

DEER.

Section 1. <i>The Names they bear at different Ages</i>	282
Section 2. <i>Breeding and Management</i>	ibid.

CHAPTER VIII.

GOATS.

Section 1. <i>Description of the different Kinds, their Utility and Management</i>	285
--	-----

CONTENTS.

	Page
Section 2. <i>Goat Skins tanned in England, and used for the Lining of Coaches, Chair - bottoms, Ladies' Shoes, &c.</i>	294

CHAPTER IX.

RABBITS.

Section 1. <i>Lands proper for Warrens, and Means of improv- ing Land with Rabbits</i>	295
Section 2. <i>Tame Rabbits</i>	319

CHAPTER X.

POULTRY.

<i>Breeding and Management</i>	322
Section 1. <i>Turkeys</i>	ibid.
Section 2. <i>Geese</i>	331
Section 3. <i>Fowls</i>	344
Section 4. <i>Ducks</i>	359
Section 5. <i>Pigeons.—The best Method of building Cots, of raising, feeding, and treating the Stock</i>	268
Section 6. <i>Guinea-fowl</i>	386
Section 7. <i>Pea-fowl</i>	387

CHAPTER XI.

BEES.

Section 1. <i>The Kinds of Bees in a Hive, their domestic Economy, and Produce</i>	389
Section 2. <i>Situation, &c. proper for Bees</i>	396
Section 3. <i>Swarming</i>	397
Section 4. <i>Construction of the Bee-house, Boxes, and Hives</i>	399

CONTENTS.

	Page
Section 5. <i>Bees in Colonies.—Taking the Wax and Honey, without destroying them</i>	400
Section 6. <i>Separating the Honey from the Comb, and purifying the Wax</i>	402
Section 7. <i>Ordering Bees in the Autumn and Spring</i>	403
Section 8. <i>Removing Bees</i>	404
Section 9. <i>Feeding Bees</i>	ibid.
Section 10. <i>Enemies to Bees</i>	406

CHAPTER XII.

<i>SHEPHERD'S DOG.</i>	408
--------------------------------	-----

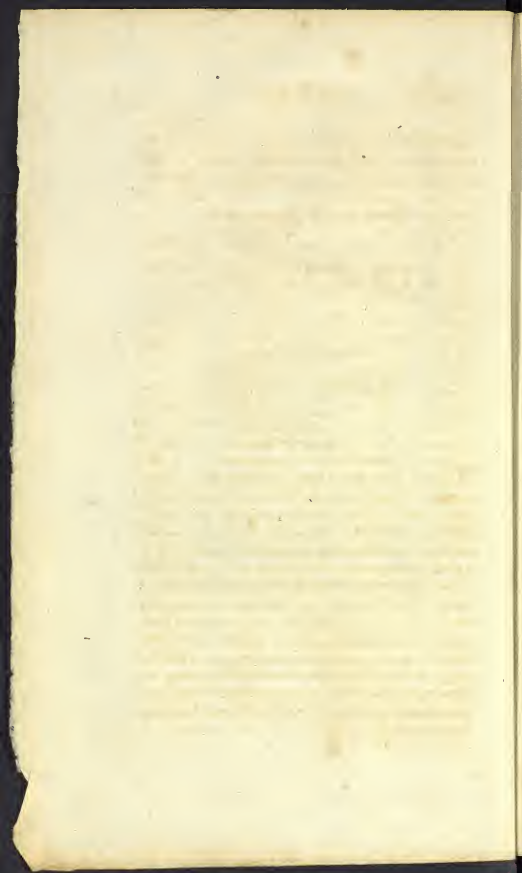
CHAPTER XIII.

FISH.

Section 1. <i>Fish proper for Ponds</i>	412
Section 2. <i>River Fish</i>	426
Section 3. <i>Fish-ponds of a small Size in Fields and Pastures</i>	431
Section 4. <i>Manner of making and raising Pond-heads</i>	434
Section 5. <i>Stocking Ponds</i>	436
Section 6. <i>Fish-ponds of a large Size</i>	437
Section 7. <i>Formation and Use of Nets</i>	444
Section 8. <i>Stews</i>	446
Section 9. <i>Feeding Fish</i>	ibid.
Section 10. <i>Fish Farming</i>	447

APPENDIX. 451

<i>Head of Cattle, Sheep and Lambs, Calves, and Pigs, sold at Smithfield in 1808, from January 4th to December 30th</i>	453
<i>Average Price of Meat for one Year, or 104 Market-days, in Smithfield Live-market, and Newgate and Leadenhall Dead-markets, in Carcases, Quarters, and Lots; shewing the Carcase Butcher's Profit</i>	465
<i>Some extraordinary Sales of Cattle and Sheep intended for breed, with other Matters relative to their Improvement</i>	467



TREATISE
ON THE
Breeding and Management
OF
LIVE STOCK:
&c. &c. &c.

CHAPTER II. (continued).

S H E E P.

HAVING, in my first volume, very fully discussed the properties of sheep—as to the qualities of various breeds, the time they respectively require to fatten, their weight, and the proportionate quantity of food consumed by each kind—with the most advantageous modes of feeding and management, the prevention or cure of the several disorders to which sheep are liable, &c. &c. I will now proceed to give some information concerning WOOL; first distinguishing the long from the short woolled sheep, whether with or without horns, the colour of the face and legs, and the average and greatest weight of fleece produced by each breed: adding remarks on the different kinds and properties of wool, with observations on pelts, their value, and the uses to which they are applied.

SECTION XXI.

Wool of different Breeds of Sheep, the average and greatest Weight, long and short; distinguished by Districts.

Long Wool.

DISTRICTS.	COUNTIES.	Horns or not; colour of faces and legs.	Aver. Gr.	
			wt. lb.	wt. lb.
Tees-water	Durham	no horns; white faces and legs	9	18
		cross of new Leicester	8	10
		Yorkshire . . no horns; white faces and legs	8	12
Lincoln	Holderness	ditto; ditto . .	8	12
	Lincolnshire	ditto; ditto . .	9	29
	(Disley)	ditto; ditto . .	7	12
	Norfolk	ditto; ditto . .	7	12
	Cambridgesh ^e .	ditto; ditto . .	7½	11
	Huntingdonsh ^e .	ditto; ditto . .	5	10
Leicester	Leicester	ditto; ditto . .	6½	10
	Northampton	ditto; ditto . .	6	9½
	Rutlandshire	ditto; ditto . .	5	10
	Warwickshire	ditto; ditto . .	5	10
	Staffordshire	ditto; ditto . .	7	12
Kent	Romney Marsh	ditto; ditto . .	7	12
Devonshire		ditto; ditto . .	9	18
Cotteswold		ditto; ditto . .	8	14
Average weight of long wool 7lb 5 oz.; gr st . wt. 13lb 4 oz.				

Short Wool.

Norfolk	Norfolk	horns; black faces and legs	2	3
		ditto; black spots on the faces and legs . .	2½	3½
Cambridgesh ^e .		ditto; ditto . .	3½	5
Huntingdonsh ^e .		ditto; black faces and legs	4½	6

DISTRICTS.	COUNTIES.	Horns or not; colour of faces and legs.	Aver. Gr.	
			wt. lb.	wt. lb.
	Bedfordshire		4 $\frac{3}{4}$	6
	Essex	horns; white faces and legs	4	5 $\frac{1}{2}$
South Down	Sussex	no horns; black faces and legs; some grey faces and legs	2	2 $\frac{1}{2}$
	Kent	ditto; lambs, shorn	3 $\frac{1}{2}$	4
	Hampshire	horns; white faces and legs	3	4
	Surrey		3	4
Wiltshire	Wiltshire	horns; white faces and legs	2 $\frac{3}{4}$	4
	Berkshire	no horns; spotted faces and legs	1 $\frac{1}{2}$	2
	Ditto	the average sheep in this county	3 $\frac{1}{2}$	4 $\frac{1}{2}$
	Oxfordshire	{ south division north ditto	3 $\frac{1}{2}$ 4 $\frac{1}{2}$	0 7
	Buckinghamsh ^e		3	4 $\frac{1}{2}$
	Hertfordshire	horns; white faces and legs	3	4 $\frac{1}{2}$
	Middlesex	ditto; ditto	4	5
Western	Dorsetshire	ditto; white faces and legs	3 $\frac{1}{2}$	8
	Isle of Portland	ditto; grey or spotted faces and legs	2	2 $\frac{1}{2}$
	Devonshire	ditto; white faces and legs	4	6
	Cornwall		4	6
	Somersetshire	horns; white faces and legs	3	8
	Gloucestersh ^e	{ Wiltshire breed Ryeland ditto	3 2	5 3
Hereford	Herefordshire	no horns; white faces and legs	2	3
	Monmouthsh ^e		1 $\frac{1}{2}$	2
	Worcestersh ^e		3 $\frac{1}{2}$	8

DISTRICTS.	COUNTIES.	Horns or not; colour of faces and legs.	Aver. Gr.	
			wt. lb.	wt. lb.
Various breeds of sheep	Shropshire	no horns; white faces and legs	1½	2½
		some parts black or spotted faces, &c. . .	3	4
	Staffordshire	no horns; white faces and legs	2	3
	Ditto (another kind)	horns; brown faces and legs		
	Ditto (ditto)	no horns; ditto . . .		
	Warwickshire	. . . . .	3	4
	Leicestershire	. . . . .	3½	4½
	Lincolnshire	no horns; white faces and legs	5½	7
		Nottinghamsh ^e . horns; black faces and legs	2	3
Heath	Do. (another, a mixture of Dishley)	no horns, &c.	6½	8
		Derbyshire	3	
	Cheshire	black or brown faces and legs	1½	4½
		Lancashire	3½	5
	Yorkshire, W. Riding	ditto; ditto	4½	6
		Pennestone	3	4½
	N. Rid ^e	ditto; spotted faces and legs	3½	4½
		E. Rid ^e . no horns; black faces and legs	4½	6
	Westmoreland	ditto; ditto	3	4
	Herdwick	ditto; speckled faces and legs	3	3½
		Northamberl ^d . ditto; black faces and legs	5	6
	Cheviot	ditto; white faces and legs; fine wool . . .	3	4

Average short wool 3lb 2½ oz.; grst. wt. 4lb 6½ oz.

DISTRICTS.	COUNTIES.	Horns or not; colour of faces and legs.	Aver. Gr.	
			wt.	wt.
			lb.	lb.
	Mugs (a mixture of Dishley)	no horns; white faces and legs; long wool	7	10
North Wales	(some with horns, and some without)		2	3
South ditto			1½	2
Isle of Man*		horns; white faces and legs; short wool	2½	3
Ditto	(On some parts of the low lands)	white faces and legs; long wool	7	10
Shetland		no horns; faces and legs various in colour; fine cotton wool	1½	2
Irish		no horns; white faces and legs; long wool	7	12
	Wicklow	horns; white faces and legs; short wool	3	5½
Spanish	Merino	rams horned; ewes without horns	6½	8½

It appears, from the best information which can be collected, that the long-wool averages 7 lb 5 oz., and the average of the greatest weight is 13 lb 4 oz.; but it is believed that the new Leicester breed, by being so generally intermingled in the old breeds, has lessened the quantity of the long combing wool 2 lb a fleece; therefore, by making no further improvement than returning to the former state, the long wools might be brought to average 9 lb a fleece, and be at the same time of better quality for the combing process. Although this opinion may stagger some readers, it will be shewn hereafter, by Mr. Godfrey's todd-bill, that in the county of Rutland, in the course of only ten years, the best hog wool has been reduced in weight about one fourth; and there-

* On this island there is an old breed of sheep, producing wool of an olive colour, or the colour of Spanish snuff.

fore it is evident I have not exaggerated the depreciation which the long fleece of wool suffers by the cross, as every one must allow that the long-wooled sheep in particular are considerably better fed than they were ten years ago, from the inclosure of commons, open fields, &c. and that great improvement has been made almost generally in artificials of every species, which, had the old breeds of sheep producing long wool been kept upon them, must have increased their weight. It will also appear in this work to be the general opinion of manufacturers that the quality has been injured, much of it being rendered too tender for the comb. The breeder has, therefore, to increase the size of the carcase, as the first improvement; for it is evident an acre of land will cut more grass than three roods, and in the same ratio a large sheep more wool than a small one—seemingly a fair comparison between the old and modern breeds. It may be remembered, when the contest took place between Mr. Chaplin, of Tathwell, in the county of Lincoln, and Mr. Bakewell, both long-wooled sheep breeders, that the manufacturers gave their opinions in favour of Mr. Chaplin's wool, as being the best in quality; and the reader will observe, in my account of the long wools, that I have given the greatest weight of the Lincolnshire at 29lb, though the instance alluded to was probably the only fleece ever produced of that weight; but Mr. Chaplin came very near it, as he produced one weighing 28lb: these are the only two instances of that superior weight that have come to my knowledge; nevertheless it is possible there may have been more. It was about the time of the contest between Mr. Chaplin and Mr. Bakewell that this heavy fleece was produced; which seems to prove that where land is of a quality good enough to keep sheep of so superior a size, growing such large quantities of wool, they are

desirable stock, as a fleece of 29lb, at 9d. a pound, is worth 21s. 9d.: three such fleeces being shorn from one wether-sheep, which is customary in the marshes where those fleeces were produced, would render the grazier no loser by keeping his wether sheep to be three times shorn, or three years old.

In regard to the short wools, the average weight of which is 3lb 2½ oz., and the average greatest weight 4lb 6½ oz., the opinions collected from the manufacturers urge a very different consideration in the improvement of that fleece, as they say it cannot well be too short, and ought to be tender; consequently it appears highly essential that breeders of short-wooled sheep, in the choice of their rams, should be very mindful that their fleece is short, fine, soft, and white, very close or thickly planted, and free from hair, particularly kemps; always to be found in the greatest abundance on the thighs. It would seem that quality is of much more consequence to the manufacturer than quantity; but, by the mode in which the sale of wool is now conducted, as even the staplers are of opinion that the best piles do not return a price proportionate to their value, improvement is, in a great measure, prevented. I would recommend the appointment of an inspector, and that the stapler should be at liberty to give 2s. or 3s. a stone more for some piles than for others, from the same kinds of sheep; which he allows is not the case at present, as the growers of wool are not themselves judges of the article. If the stapler were to give the utmost value for an extraordinary good pile, his neighbour, having the same species of sheep, would expect the same price; as I know it is common among the growers of wool to make little or no distinction, but by name—South Down, Dorset, &c.—supposing every pile to be nearly alike; though it appears obvious there ought to be a very great

distinction made. And were the inspector, as an independent judge between the buyer and seller, to point out the defects, it would, in all probability, cause much emulation among the breeders, make them better judges of wool, and prove a national advantage.

As to an increase in quantity of short wool, that seems very difficult to be obtained, if growing it longer and stronger be diminishing its value, which appears to me clearly the fact. As many sheep that produce the short-wooled fleece pasture on poor, barren land, adding to the size of carcase might be dangerous; because, if small animals will live where large ones would starve, the breeding them of a larger size might not only be the cause of rendering the article inferior, but of lessening the quantity: and if the tradesmen in the hose line, in London, are right in saying that the worsted goods are become rougher or more bristly since turnips were introduced, very high keep must have a similar effect on the carding-wool. Therefore a greater weight is not easily obtained, though the wool may be produced of better quality.

SECTION XXII.

Remarks on different Kinds of Wool.

Long Wool.

TEES-WATER sheep's wool is greatly softened by a mixture of the Dishley. The fleece, though considered beautiful, judging from the unwrought staple, proves defective in some of the essential qualities of wool: the hair glitters too much, as the yolk is said to be deficient, owing to its being washed out by rain; but this I cannot believe is the cause, for, from the nature of the sheep's fleece on his carcase, the wet is never seen to penetrate much into it: it is sometimes hard, and not true, being

more soft at the bottom than the top of the staple; the breeches of the fleece are large and hairy, and the pile is of a dingy colour. One of its good qualities is, its length of staple, which fits it most admirably for the comb, and the coarse kind of worsted manufactures. The breeders ought to take care not to go too far into the Dishley cross, for fear it should render the wool, or staple, too weak to stand the operation of combing, and some of it curled, and shorter than proper for the purposes to which it is applied.

Lincolnshire possesses great natural advantages for the production of long wool, and is the part in which probably it was first cultivated with spirit and success. In this county are the pastures from which the looms of Norfolk were supplied for almost five centuries; and which, during the greater part of that period, have yielded an incomparable fleece. The long wool of Leicestershire rose in value and esteem at a much later date; but notwithstanding the Dishley blood has been introduced as an improvement, I have strong facts before me—some of which are already inserted in this work, and more are to follow—that incontrovertibly prove the expectation to have been fallacious. The pure blood of Lincolnshire is now rarely to be found, although the first of the Dishley breed sprung from the county of Lincoln; but it has been deteriorated, both in weight of wool and carcase, by being mixed with the Dishley. To the Lincolnshire sheep one cross was of service, in some flocks, on convertible soils, in different parts of the county, but never in the marshes: the cross on those soils has rendered the wool finer and softer, but it has thereby lost the toughness required in the best-qualified combing wool.

I have observed that several noblemen and gentlemen who are leading characters in advocating improvements

in the breeding of domestic animals, in their speeches at the various sheep-shearings, shows of sheep, &c. express a wish that there were no combing wool grown in England, but all Spanish, Merino, &c. even in the rich marshes of Lincolnshire, which is proved to be impossible; though, were it possible, the large long-wooled sheep is much the most profitable; where it can be kept: not considering, that there is a much larger capital and a greater number of hands employed when the fleeces are worked up into worsted goods, and when exported produce to the community a more considerable return than the very same wool would have done had it been wrought into woollens. The difference in favour of worsted goods, calculated without entering very minutely into the subject, appears to be nearly as three to one. I do not mean to contend that the worsted articles will fetch three times the price, for the raw material, that those of woollen will afford; but that, if a sum of money be laid out in wool to be wrought in either mode, and half of it be manufactured one way, and half the other, then that the capital employed by one of these quantities, the wages paid for the manufacture of it, and the incidental expenses which are incurred before it reaches the foreign consumer, will render it necessary that he should remit to this country three times the amount that he will have to send for the other, and the advantage to the community is, in course, in the same proportion. And it is further to be considered, that foreign powers which trade to this country for goods, pay a great share of the taxes imposed on the different English articles they consume, as the merchant and manufacturer will necessarily lay a proportion of the taxes he pays on the article he trades in or manufactures. This common reason will shew to any man; but as a further substantiation, I have proof of it by living in America,

where I paid much heavier taxes than I ever did or do in England, the woollen manufactured goods being in general six times the price they are in this kingdom, which, in fact, may be considered as the English taxes paid in America. It is very common to hear an American express his wonder how the Englishman pays his taxes; not considering that he, as the consumer of English goods, is paying a very large share of them; and the heavier the amount on any goods the greater proportion of tax it pays: therefore, as the advantage to this country is so great, the importation of raw materials for the manufactures of England should be encouraged. The conduct of many well-informed noblemen and gentlemen, influenced by the prevailing fashion, in endeavouring to persuade breeders of sheep to get into the Merino breed, and obtain a fine, light, tender fleece, from the land which is calculated to produce long wool, in my opinion, if acted upon, would ultimately banish the worsted manufacture from this kingdom. There is another very material consideration to be regarded, namely, the deterioration of carcase by such a breed; for although a few pampered sheep are exhibited at shows, chosen out of the flock, weighing 12 or as high as 16 lb a quarter, if the reader look back to the sort of sheep the natural produce of the land properly suited to the growth of long wool, he will find that the carcasses of forty-five sheep sent to market from the very kind of land to which I allude, without the assistance of any expensive food, produced 146 lb a carcase, or 36½ lb a quarter, averaged 27 lb of loose fat, and in wool at the least from 12 to 15 lb a fleece: thus there would be so great a diminution in mutton, that it might cause a national want. It is possible there are some situations where those tender sheep may be profitable, but even of this I have my doubts, for many reasons. One strong

proof of the impolicy of the practice is shewn in the trial made by Mr. Bridge in Dorsetshire, a county where the sheep appear very similar to the Spanish breed; in which, though I have every reason to believe there is not a man in the kingdom more competent to do justice to the experiment, he was obliged to totally banish and do away, not only the breed itself, but every cross; and, as his Majesty was so liberal as to make him a present of the ram, there is not the least doubt but Mr. Bridge would give the sheep fair play, with every wish to make the cross answer. But any unprejudiced man who looks into the book of nature, will perceive, in the long run, that the sheep found in the several counties will, in a general way, prove by continuance the most healthy and profitable; though, by proper crosses, they may be improved.

The county of Lincoln, in particular, is so well suited to the production of long wool, and that which is wanted for the coarser woollen goods, as to render it highly desirable that each kind should be there cultivated to the greatest perfection, and that the breeder should adapt his fleece to a certain object, and banish from it all ambiguity of qualities; for there is as much difference in the purposes to which the two kinds of wool are applied, as there is in the uses to which wheat and barley are appropriated; consequently, there should be as much care taken to preserve the fleeces distinct from each other, as to prevent corn from growing intermixed on the same land. In some parts of the marshes, the stock of sheep is computed, during the summer, at seven or eight to the acre, averaging them at 10 lb a fleece, which at 9d. per pound, or 21s. 9d. a todd, is 3l. 15s. an acre. Mr. Luccock has included the lambs; but there are few lambs bred in those marshes: the Lincolnshire sheep are generally bred in the middle marshes, which are a part

of the county lying between the marshes and the wolds; and great numbers of the lambs (called at that age hogs) used to be wintered at hay, the customary method being to keep them on the land where the hay had been grown, from one and a half to two hogs on an acre; they had the hay-stack to run to, and would, therefore, by eating the bottom part of the stack away, form a covering, which in some measure sheltered them from the weather. But by that sort of keep much hay seed was inserted among the wool, which must occasion great loss and trouble to the manufacturer in getting it out; the wool of several of those hogs would be of a green colour within, or what is termed *winter-stained*; and at times, when the harvest proved bad, and the hay ran much together, it proved indifferent food; while in severe snows, from this cause, by their being on the shrink, putting an entire stop to the growth of the wool, it would become jointed, and when the time arrived for the sheep to mend, the wool would begin to grow again, and in that very part be tender, and if taken hold of by the ends, with a gentle pull it would break, which must have occasioned another waste in combing: but, notwithstanding this apparent waste, loss, &c. I have heard the staplers say, there was a softness in that wool, superior to the wool now maintained on turnips and rapes, and that the worsted goods had not the harsh, rough feel, they have at present. This is corroborated by the London hosiers, who all assert that the worsted goods have not been of so good a quality since the time when sheep were kept on hay and grass: therefore, from all the information I have obtained, it appears to me that the wool of sheep kept on those rich marshes is superior, for the comb, to that of those kept on the artificial foods. Again, when those hogs were kept at hay-stacks, the stacks were generally inclosed with furze faggots, which

rendered the place warm; hence, by lying under the hollow part of the stack, somewhat similar to a house, their resting-place being formed of hay, dung, and urine, incorporated, although the sheep thus kept did not grow and improve so quickly, or shear so large a fleece, the wool was of a finer texture than it is now of the same breed. I am fully persuaded that housing sheep, though less healthy, tends to produce fine wool; for in America, where, from the severity of the weather, I was compelled to house my sheep, there was a peculiar softness in the wool, which I had not the least reason to believe arose from the breed, as the outward part of the fleece was frequently rough and hairy, particularly on the breeches: to be sure all their food was of a very weak nature, both in summer and winter, which might be another cause; and we were obliged to give them salt twice or three times a week, to enable them to digest their dry food, or many of them would have been so costive as to die or waste away, which also was probably of service to their wool; for near the sea, in every part where I have been, the wool of sheep has a glittering, brilliant appearance, very different from that of the same breed four or five miles from the coast, and the wool weighs much heavier according to its bulk; therefore, salt may give weight, although the long wool in America averages not more than 3 or 3½ lb a fleece, and is from 4 to 6 inches in length. However, the county of Lincoln stands unrivalled, as to quantity and quality, in the best and most profitable long wool, from any given space of land, allowing four sheep to an acre in summer, and two in winter. If they pay in wool only, as there are three fleeces in two years from two sheep, and one fleece from the increased stock in summer, making five fleeces on one acre yearly, this, averaging each fleece at 10 lb, at 9*d.* per pound, will produce the sum of 37*s.* 6*d.*

an acre, exclusive of the carcass : as these marshes carry a mixture of stock, on an average one beast to two acres, if they pay 4*l.* a beast, it makes 3*l.* 17*s.* 6*d.* an acre ; and if the sheep's carcasses pay 5*s.* a head, that will be 25*s.* more ; in all 5*l.* an acre : the rent of such land being from 40*s.* to 50*s.* an acre, the produce will be about two years' or two and a quarter's rent. Those authors whom I have observed mention seven and eight sheep an acre are incorrect, that number being more than is kept on the average, excepting store stock for one or two months in the spring. I have kept ten hogs on an acre from the beginning of May till August ; but not sheep intended to be fattened that summer.

I have been thus particular in describing the nature and profit of long wool in the county of Lincoln, to shew the necessity of producing more kinds of wool for English manufacture ; for it is evident in reading the speeches of the chairmen at all public meetings, that they wish to induce breeders to raise Merino sheep only, as they have frequently endeavoured to persuade the public that the finest combing wool might be produced in those rich marshes, which is certainly impossible : add to which, the carcasses of such sheep would be very inferior ; for if we suppose four of them to average 48 *lb* a carcass, and the present stock of long-wooled sheep to average but 96 *lb* a carcass, at 9*d.* per pound, the latter would give 36*s.* an acre more than the Merino : and what a diminution there would be in weight to become general in the mutton market !

In other parts of the county there are lands of a miscellaneous nature, that of late years, since the introduction of artificials, have produced sheep of a much larger size, and more wool, than formerly. Many sheep bred on those lands, upon the wolds and heaths, are so improved as to make fat sheep ; and others are preparing,

at the age of one or two years, for sale to the graziers; which is the reason that the marshes produce such an abundance of wool, as the hogs have then one year's crop upon them: during the first year they are kept as store sheep, and the following summer put on the richer part of the pastures to fatten; in the autumn they are fat, and, if the winter be not very severe, they keep their fat, fed on grass only, and are ready for the shambles in April and May, and shorn before they are sent to market. It is therefore requisite that sheep should be of a large size to be profitable, as they continue growing as well as fattening; and the second time of shearing they produce the heaviest fleece. I have weighed a hundred fleeces of the second shearing, averaging 15 lb a fleece: about one half of those marshes being of a weaker nature; and the greatest profit is derived from the wool. The wolds and heaths produce a finer wool, but not so soft, weighing about 7 lb a fleece. A very small proportion of land in this county produces wool considered proper for the comb, even on the wolds, since the great improvements by turnips and seeds; but in the valleys there is land suited for breeding large sheep and long wool; consequently, it is a long-wool county, and adapted to afford mutton of a large size.

Mr. Luccock, in his valuable treatise on wool, gives many judicious opinions, from which I quote the following: "Nature seems to have formed [a large proportion of Lincolnshire] for the production of long wool in the most perfect state to which it can attain; and it would be absurd, so long as the demand for that sort of wool continues, to appropriate such luxuriant and nutritious grasses to the support of naked sheep, as has sometimes been wished, or of those whose pile shall resemble that of the Ryeland or South Down breed. The shepherds here will certainly find it contribute

much more to their interest, if they continue to cultivate a fleece suited to establish manufactures, and to those which have long depended for their existence upon the produce of these pastures, if they adopt those alterations which shall enable the worsted manufacturer to suit the present taste, than by introducing a fashionable breed of sheep, whose produce is better suited to other soils than they occupy, to other manufacturers than have yet required it, and to other customers than have yet sought for the wools of Lincoln."

There are many other counties that grow combing wool, but very few which, by nature, are so well adapted for it. The kinds of sheep may be seen to vary some little in features, but much more in their wool, even in the county of Lincoln, about Brigg, Castor, &c. where many of the sheep have a fine, close coat: I have bought hogs from those parts, and taken them to the salt marshes at Skegness, near Wainfleet, which, when they had pastured there one year, were so altered, that had they been driven back and mixed in the flock they came from, no person could have supposed them to be of the same breed.

I much approve of Mr. Luccock's opinions respecting the growing of long wool, but he has often been misled in his information concerning the carcase, particularly where he says the new Leicesters have increased it; for they have, in a general way, had a contrary effect: and he has, in one or two instances, endeavoured to prove that climate and soil do not affect the wool; but the reader may take this as an established rule, that if soil and climate have effect on the carcase, they must have some on the wool, as both are supported by the stomach;—the food in the stomach feeds the carcase, and the carcase feeds the coat or fleece. Nature may be stopped

by crosses, and she may require much time, in some cases, to recover herself; but probably there never was a greater change than in the county of Leicester. Mr. Luccock gives a very accurate description of the old Leicesters; he observes, they were "large, rough animals, with a long, tough, coarse, and hairy fleece." Now, Mr. L. says, it is "too short and weak to be admitted among the first ranks of combing wool;" and I can safely pronounce the carcase to be too small and effeminate to be profitable.

During my different surveys of counties, I have found corroborative proofs of Mr. L.'s assertion; as, in every county, the greatest advocates for the new breeds all allow that the quantity of wool is diminished: nor did Mr. Bakewell himself contend otherwise; his argument was, that he fed more mutton on a given quantity of food, supposing that all food taken by animals applied itself to separate uses, which is incontrovertibly proved in this work to be erroneous; and, although it may appear reasonable, it should *not be so*: Mr. Bakewell's system of breeding sheep has taken away one profit, without replacing it by another.

I had an idea that there was no county in the kingdom equal to Lincoln for long wool, as to weight; but when I surveyed the county of Rutland I saw reason to doubt my opinion. When there, I was favoured by Mr. Godfrey, of Wardley, who is a very good and correct grazier, and has been in the habit of buying the best hogs, or year-old sheep, which could be obtained in the fairs in that county, with a sight of his todd bills for the last twenty years; and, by way of shewing my readers, what I have often alluded to in this work, that an actual decrease has taken place in the weight of wool since the new Leicester sheep have been introduced, Mr. G. permitted me to take an account of four years' weight of

wool, at an interval of ten years, sold by him, as follows:—

Mr. Godfrey's Todd-bill.

Date.

1783 .	632 fleeces .	210 todDs ; being 208 todDs of three fleeces to a todd, and 2 of four ditto to ditto.
1784 .	613 fleeces .	210 todDs ; being 193 todDs of three fleeces to a todd, and 17 of two ditto to ditto.
1803 .	653 fleeces .	178 todDs ; being 118 todDs of four fleeces to a todd, and 60 of three ditto to ditto.
1804 .	666 fleeces .	175 todDs ; being 135 todDs of four fleeces to a todd, and 40 of three ditto to ditto.

By the above statement it appears that the wool in this county has in ten years decreased nearly one fourth: if it has kept its quality, the old sheep may be allowed, as these were all hogs, to shear, at an average price, 8s. each; hence there will be a loss of 131*l.* 9s. in the two years, or 65*l.* 19s. 6*d.* a year; which, supposing two sheep to the acre, is a reduction of 4s. an acre, in the wool only, from Mr. Godfrey's profits, which would be very considerable taken through the whole county.

Short Wool.

The different species of sheep growing short wool seem to vary much more than those producing long wool; and therefore, although I have drawn my information respecting the natural properties of the latter almost entirely from Lincoln, as being the county best adapted for its production, I must claim the indulgence

of the reader in making some comparisons of counties that grow short or combing wool.

Beginning with the county of Norfolk.—The wool of the Norfolk sheep is short and fine, and they are remarkable for casting it before shearing time: the fleece of these sheep is esteemed for being composed of filaments of a peculiar flatness, and has been described as possessing that trueness of hair which is always esteemed a good quality by the manufacturers; but the fleece is often infested with kemps, and abounds with grey hairs. The wool of these sheep is said to have been improved of late years, being well adapted for the manufacture of cloth, possessing the felting quality in a great degree, and but little of that elasticity which often proves a fault. It seems, from every information concerning the best sort of short wool, that it cannot be too thickly planted, though it may be too long, as short wool with an even top has a more uniform supply of yolk: the Merino is the breed from which I draw my conclusion. Mr. Luccock remarks, that the hair of the Norfolk sheep's wool "has been observed to be composed of a number of small fibres, lying parallel to each other, and capable of being separated almost through their whole length."

The South Down sheep are said by staplers to want uniformity of staple; the wool which grows on the back differing much from that on the sides and shoulders, and the breech becoming suddenly coarse. Among those persons who manufacture the thicker kind of coloured cloth, a strong prejudice prevails against the South Down wool, because it is found to be destitute of that felting quality which is absolutely essential to the perfection of those articles which they commonly fabricate; and some are convinced that the deficiency arises from pasturing on a chalky soil. Those who have the interest

of the county at heart, have been apprehensive lest it should communicate the peculiar tenderness of its pile to some of the most approved wools of the island. The introduction of the Merino family upon some of those celebrated pastures so favourable to sheep, but so much deprecated by one class of clothiers, will shortly determine whether the defect in the wool arises wholly from the soil, or partly from the nature of the animal; whether it may be counteracted by the production of a large supply of yolk, and a closer coat—the natural effects of a combination with the Spanish race—or whether the intermixture of absorbent earths with the growing pile will convert the best kind of fleeces into an imperfect staple, and destroy one of the most distinctive qualities of wool.

Wiltshire.—The wool of this county, in general, possesses a considerable degree of uniformity. The pile is, for the most part, white, soft, and remarkably clean; and, the fleece being scanty, the sheep producing no wool upon the belly and lower part of the thighs, it is free from dag-locks and skirts.

Berkshire is said to produce a fleece well suited to the clothier's purpose.

Buckinghamshire, on the chalk soils, also produces wool fit for the clothier—short, soft, and pliable, but very often a large coarse breech, and sometimes intermixed with kemps.

The Hertfordshire sheep afford wool very similar to the Wiltshire.

Dorsetshire.—The wool of the Dorset sheep is short, fine, and close, highly esteemed in the manufacture of woollens. Complaints have been made against the sand; and some staplers have thought that part of it is too coarse and long.

Devonshire.—The staple is both coarse and thin, especially that which grows about the haunches.

Cornwall produces two distinct kinds of wool; the one a coarse fleece, of but little value; the other a fleece fit for the worsted trade. The yarn made from it chiefly manufactured into serge.

Exmore.—The wool grown here is soft and silky, rather long; and of a yellow tinge: it is said by the manufacturers to make cloth of too harsh a texture.

Hereford, or Ryeland.—The wool of these sheep is said to excel all other wool grown in England, the Spanish cross excepted. I observe Mr. Luccock mentions a sample of this wool sent to him, which he says was the most perfect he ever saw; I would request the reader's particular attention to what he considered its excellence.—“It was completely grown, with a staple very thick and uncommonly full of pile, soft and delicate beyond description, its colour was beautifully white, and the hair extremely fine, in length it scarcely reached half an inch. A small quantity had been preserved as a curiosity, and the lock alluded to was presented as such. But most of the wool, even of this county, admits of a very different description. Upon the sand soils, it is said to be thin, harsh, and out of proof (that is, grown with a smaller quantity of yolk than was requisite); in the inclosures, thick and yellowish; upon the commons yellowish, soft, and silky, but not always remarkably clean, and sometimes subject to kemps.”—“Here the old custom of employing sworn and licensed winders is diligently adhered to, and they are engaged to strip off the coarse part of the fleece, and to wind up only the better kind of wool; to tie about half a dozen fleeces together, and to ticket the weight of each bundle, or as it is there called a trendle. In this county the bundle does not re-

semble that of Norfolk, as sometimes is supposed, for in Herefordshire the fleeces are wrapped up separately, very hard, and commonly in the shape of a ninepin, and of these the bundle is composed; but in Norfolk the unwound fleeces are spread upon each other, and when a sufficient number are thus disposed, all of them are rolled up in one general mass, and there also called a bundle. This latter is certainly the easiest and quickest mode of securing the fleeces, but it obliges the farmer to conceal the best of his wool, and the buyer to purchase it rather from recollection of the sorts which the parcel produced in former years, than from any opinion formed of the value of those particular fleeces which are offered to his notice. The parcel of a certain person, he knows, was last year either good or bad, and he supposes that its quality will not be greatly altered in this. But where every fleece is wrapped up singly [which, I believe, is according to act of parliament; for when that is properly observed, and no fleece broken, deception is obviated, such as concealing inferior wool, or even fleeces of different qualities, by wrapping the best on the outside] there is evidently much more room for the exercise of skill in estimating the value of a quantity of wool, and a more solid basis whereon to found a definite opinion. In Herefordshire, fleeces are sold in public fairs by a stone of 12½ lb. The weight of them being ascertained before they are exposed to sale, business is done at once, and with ease; but it is grossly ridiculous to call those agricultural meetings, wool-fairs, where a number of gentlemen meet in a private room, talk learnedly about the different value of particular breeds of sheep, and finally close by agreeing what price they will have for their wool, and making a general offer of it; where not a single fleece is to be seen, where no stranger can purchase but at the utmost hazard of entering upon a bad

speculation, for being ignorant of the county and its produce, it is highly probable that none but rejected parcels will fall into his hands, and finally discourage him from appearing at the fair again. If it be the object of these gentlemen to encourage a competition in the buyers, let them shew us the article which they offer, we shall each then form his own opinion; let them transact the whole business upon the spot, then we shall not be obliged to tarry whole weeks before it can be completed; let them adopt the customs of the more northern public markets, and no disputes will arise, nor any jealousy subsist between the sellers and those who purchase. I confess myself the friend of public markets, of open and candid transactions, of institutions which give to all an equal chance, of those which are calculated to secure for an excellent article its adequate price, and to deprive an inferior one of its fictitious value. In the West Riding of Yorkshire we certainly see too plainly the benefits arising from public and open markets, to be in the least apprehensive that if generally instituted for the sale of wool, they would injure the interest of the stapler. But if they are instituted, let them be markets, meetings where something is to be seen as well as purchased, and not a mere name, an unsubstantial something in which the buyer has no interest. Then, and not till then, I apprehend will the wool-grower have no reason to complain that staplers do not attend, that they appear to dislike these fairs."—Vide *The Nature and Properties of Wool illustrated*, by J. Luccock, p. 298-300.

About a week before I had the satisfaction of meeting with Mr. L.'s opinion on wool-fairs, &c. I had written the following article for *The Farmer's Journal*, October 1st, 1808: which, being immediately relevant to the subject under consideration, I take the liberty of inserting.—

To the Editor of the Farmer's Journal.

" Indeed I am not one of those who consider the increased luxury of the country as a public benefit, or as any proper criterion of public strength and prosperity, yet when I see the great bulk of people (I speak not of the vicious refuse of an over-grown capital) better fed, better clothed, better lodged, and better educated, than the same class either was, or now is, in any other part of the world, I cannot but look upon the situation of this country to be extremely prosperous.

" I am not ignorant that our commerce is the parent of our national opulence, and that our opulence, rather than the number of our people, is the present sinew of our national strength. But should commerce ever desert us, as it has deserted all other countries in which it once flourished, I am anxious that we should still be able to maintain our station as a free people among the despotic powers of Europe. It would be far better for us to be a free nation of labouring peasants, than a nation of gentlemen wearing chains of slavery gilt by the gold of commerce.

" An improved agriculture is preparatory to, and productive of, an increase of population. The time, I hope, will come, when an unproductive acre of land will not be found in either of these our fortunate islands; and when that time shall fully come, we shall have food within ourselves for the annual sustenance of thirty millions of people at the least; and, with a population of thirty millions, what power in Europe, what combination of powers, will dare to attempt our subjugation?"—*Communications to the Board of Agriculture by the Bishop of Landaff*, vol. VI. part 1.

" SIR,—I have attentively observed your various reports of sheep shearings, wool-sales, &c. this year, and truly sorry I have been to see, that at most of them a considerable discordancy of opinion has taken place between the grower and buyer; the one party almost demanding a positive maximum price, while the other has as studiously avoided bidding at all; thereby, in a measure, overturning a judicious system of annual assembly between both parties, and retarding, in a measure, that great national desideratum—an improvement of the British fleece. I must except, however, the Hounslow wool-fair, as detailed by you in vol. II, No. 68, where a liberal sentiment came from the chair on the part of the growers,

of 'coming to the fair positively to sell without reserve, for a reasonable price;' for in that spirit alone can trade ever be carried on with facility; it being no more than reasonable to infer, that if the buyers could make a living profit by their transactions, they would not let the opportunity slip. The enlightened sentiments, and thorough knowledge of the trade and commerce of this country, that proceeded from Lord Sheffield as chairman of the Lewes fair, certainly points him out as a nobleman who has made our manufactures his study; but he should, at the same time, have taken the immense quantity of English wool then on hand into account, and not have relied so strongly on the probability of a shortness in the future Spanish import; which combined, no doubt tended to cause the growers to hold their wools at higher prices than what the then state of the manufactured market warranted. Many growers have at the present moment three years' clip of wool on hand, and, as I conceive, much to their disadvantage, independent of the deterioration it may receive in being kept; for if they were to take the interest of money into account, it in most instances would more than compensate for the trifling reduction by the buyers on their original demand.

"A want of thorough knowledge on the part of the growers of the different qualities of their fleeces, is, in my opinion, the chief cause of these jarring interests. Although it may be possible for those gentlemen who make their flocks their chief study duly to appreciate the value of their wool, yet it is equally impossible for the generality of growers to know that in fixing any positive price, they are doing what is for their interest, however much they may complain of the obstinacy of the buyers in refusing to bid corresponding prices; it being an undisputed fact, to those who are judges of wool, that in

examining the clips of the respective farmers in any particular district, so many fleeces thereof will be found fit for the combs, so many for clothing, while others shall not run regular as to dirt: nor is this all, the flocks of of any holder may be various in quality, although of the same species; also, in many cases, there is a positive difference of breed—say, for instance, perhaps in one flock Downs, Dorset, Somersets, Welsh, &c.

“ Your report of the last Thetford wool fair, in one or two instances, rather staggered me. According to your account, it was there observed, ‘ that it was of little signification to the gentlemen present, whether they sold their wool or not, if the buyers would not agree with the estimated price; because they could afford to keep it until they (the buyers) did.’ The woollen trade at that time was very bad; and, although it is some consolation to know it is rather better now, I think the growers are doing the wool-trade an injury, in thus attempting to point out a positive price, unless they are fully acquainted with its actual state through all its branches until it is turned out of the loom. Great stress was also laid on the considerable profit made by sending fine wool of English growth to Ireland; and the price obtained for wool in that country by several gentlemen was adduced as an encouragement. In order to elucidate the reason why that has been the case, it will be necessary to consider the state of the woollen trade in Ireland, and the means they have of supplying themselves with the raw material. More serviceable or better cloth of the kind is not to be seen than is made in the liberty of Dublin, which the clothes of the army on the Irish establishment will prove; but then they are in want of a superior quality for the west, which as yet their country cannot produce in any quantity, to enable them to manufacture that fine, light, or

superfine cloth, which they have been in the habit of importing hitherto so largely from this country. From the low state of commerce in Ireland, their connections with Spain and other countries have not, in any proportionate degree, equalled ours; even if the close, although in many instances restricted, connection between England and Ireland, had not hitherto operated to prevent the Irish from a recurrence to foreign countries for a supply of many articles: and it is only recently that Ireland has turned her attention to the manufacture of fine cloths, to take place of those thrown into her market by us. In order to accomplish this end, clothing wool was necessary; her Farming Society, therefore, (of whose endeavours it is impossible to speak too highly), set about encouraging the South Down breed of sheep, and, by giving premiums for the finest cloth, stimulated the endeavours of her manufacturers: this caused a demand for quantities of clothing wool, and, as her foreign commerce was so limited, she of necessity looked to England for her chief supply, and hence the wonderful price obtained there for our best breeds; but then, although Ireland, by making her own cloth at home, can give those prices, it does not follow that the English manufacturer can, when he can obtain from Spain what he wants at a cheaper rate in proportion.

“Another position I must notice, was that of ‘the buyers looking more to quantity than to quality.’ This I cannot understand; and should like, through the medium of your Journal, to have an explanation of it. I have only one way to account for it, which is this, that it is the demand for an article which regulates the price. If a wool-buyer finds a great demand for the low sorts, and very little for fine, he naturally looks out for those lots which produce the sorts he wants; hence it is that

he prefers the saleable quantity to the unsaleable quality, or that he will give more in proportion for coarse than for fine wool. I have not entered into this discussion without having an easy remedy at hand, whereby every grower might be made acquainted with the actual value of his clip; and those patriotic noblemen and gentlemen who preside at wool meetings, while they were confident of the quality of their own, would have an accurate means of knowing that of the growers' in their neighbourhood, and instead of forming a positive price for the whole as now, according to name, would be able to appreciate it according to quality. For this purpose, I propose that a class of men to be called Wool Inspectors should be appointed, and sworn under the patronage of the various county Agricultural Societies, who should be sent round to examine all the different clips, and report accordingly to some central place to be agreed on. As the chief advantage of my plan would depend on such reports, persons of strict probity and honour, and who are competent judges, should be selected; and I am convinced ninety-nine out of a hundred of the buyers and manufacturers would gladly enter into the measure. It is well known that every description of wool grown in this kingdom is more or less fit for various sorts of goods; but the evil, which has existed for many centuries, is, from not having discovered the inferior fleeces from those which are of a true standard quality and staple. My plan would obviate this; and, as the books would be open for the inspection of all parties, it would cause an active emulation among all the growers to obtain the highest possible price; while the reports of the true state of their various clips, by being made public, and compared with their neighbours', would do more towards an improvement of breed than any thing by the way of premium

could ever effect. The buyers and manufacturers also could easily average the lots, and would find the greatest facility in making their bargains. The following blank formula should be printed for the purpose :

<i>County</i>		<i>Parish of</i>			
	Growers' names.	Fleeces washed.	Unwashed fleeces.	Clothing.	Combing.
First sort					
Second sort					

The above have been inspected by me, and is a true statement.

(Dated)

180

(Signed)

Inspector.

“ The reason why I wish to have the wool described as first and second sort, is, independent of the great variation there is in the quality of the fleeces of most sorts of wool, very often from the neglectful manner of attending the sheep, and the winding of the wool when shorn, some have also a considerable quantity more brecch than other fleeces have, which of course so deteriorates its value, that, if fine on the body, it really reduces it to the quality of second sort. Again, from being improperly washed, or not properly taken care of after washing, sand or dirt gets intermixed with the fleece: it likewise often happens that sheep are not shorn in due time after washing, in which case the yolk will have again risen too high in the fleece. Some growers will also clip their wool in four or five days after washing, which may be too soon; others will still brand their sheep with pitch or tar, which cannot be removed by the

manufacturer without waste. If the act of parliament were attended to at all, it would be found that it limits the time of shearing to be not less than ten days, or more than fifteen days, after washing. All these things so repeatedly occurring, have great effect in reducing the value of wool at the time of sale; and their being pointed out by the above plan would facilitate the establishment of a better system.

"The wool in Yorkshire, where some such method is pursued, is by far more attended to than the wool of any other county, not even excepting the counties in my neighbourhood. This may perhaps arise from the greatest part of the Yorkshire wool being consumed in its own country, which naturally has caused the growers to pay the utmost attention, not only to their flocks, but to their shearing, and particularly the winding of the fleeces; which has reduced their trade to a system, and caused business to be carried on with the utmost facility. Lincoln is probably the only county (Hereford excepted) where the winders regularly take out a licence directed by act of parliament, and who are employed in the true spirit of the act: there the dirty and broken fleeces are carefully avoided, and the sheep shorn in proper times, whereby both growers and buyers are benefited, as the winders are punishable for neglect.

"I would recommend Mr. Luccock's valuable treatise to the consideration of your friends: and, hoping these remarks will be thought worthy attention, I subscribe myself,

"Your obedient servant."

I have been induced to urge the appointment of inspectors seeing the very great utility of such men in America in the examination of the two staple commodities of that country, tobacco and flour; the latter

being managed in a way probably superior to any other part of the globe. Wheat in America is received from the farmer so intermixed with other articles and refuse, that an English factor would not purchase it in that state at any price: I have seen it there delivered to the merchant miller mixed with one third garlic; and how they estimate its value appears to me extraordinary. I have great reason to believe that the flour being brought to the high perfection it is, arises from the vigilance of inspectors, who carefully examine every barrel with a borer which goes quite to the bottom, and brings up a portion of the flour; this is put into a bag, and the barrel branded according to its merits, 'Superfine,' 'Fine,' &c.: hence the miller is stimulated to use his utmost endeavours in producing the best possible article. Were this measure adopted in regard to wool, I have not the least doubt but it would produce a similar effect on the breeders and growers; as in all probability it might happen in the same parish that one breeder would obtain the appellation of first grower, his neighbour of second, &c. consequently each would exert himself to excel: and further, the inspector being able to point out defects, and to determine as to the uses for which each kind of wool was adapted, whether it was of a felting quality or not, &c. &c. in time the growers would be acquainted with the merits and demerits of wools, and would thus become instructed how to breed the most profitable kinds as suited to their respective soils, of which at present they are most of them ignorant. Those wool fairs that are now established, would be very proper places for the inspectors' books to be shewn at; and if the buyers and growers were to meet at the same time, which without doubt they would, it might be a means of facilitating the business: though

I cannot think that the buyers would very readily agree to the plan, or, according to the old saying, 'buy a pig in a poke;' for, as Mr. Luceock observes, Who would purchase such an article as wool without seeing it? Would the farmers like to buy their cattle, sheep, horses, &c. without seeing them? Therefore I think it most unreasonable to expect that the buyers would comply. But the plan I have laid down is more with an intention of improving the fleeces, than for the sale of wool at fairs.

In Ireland, wool is carried to fairs to be sold in very large quantities; breeders and growers who have perhaps a thousand sheep or upwards have no other means of selling their wool, as there are no staplers in that country, and but few jobbers; but when I lived there I found it a very unpleasant mode of doing business. It is very common for the grower to take the wool from one to three or four hundred sheep, and not sell a pound. These are disadvantages which are avoided in this country; while the business is conducted on a much cheaper plan, by the stapler, or manufacturer, riding round a county, and buying such parcels as are suited to his purpose: and it often happens the stapler is in the habit of purchasing the same grower's wool for many years. My grandfather, my father, my brother, and myself, all sold to one family of staplers. A national benefit arose from such connections; as—it being the custom of these staplers, who lived at Halifax, in Yorkshire, to come into the county of Lincoln in the month of July, when they used to take up the wool, and send it to market—for the greater part of the money, probably 300*l.* or upwards, a note of hand was given, payable with a bill at one month, to be due at Lady-day, which was about nine months' interest on the money paid by the grower of the wool to the trade of York-

shire: and this attended with no inconvenience to my father, who, in the month of July, and at intervals during the summer, was selling the carcasses of the sheep from which the wool was shorn, to feed the very same people who were working up the wool; consequently his coffers were amply supplied, without wanting the money for the wool, until the time of purchasing the spring stock. Where such confidence exists between seller and buyer, it must be of very great advantage to trade; and I knew many other graziers transact their business with the staplers in the same manner as my father. The Yorkshire staplers came into the county of Lincoln, and by acting with integrity and honour, had credit given them for many thousand pounds, which money, instead of lying entirely useless, was thus applied in trade, and must necessarily benefit the public at large; while the wool was regularly applied every year to the use of the manufacturer. But by the jarring method that now seems to prevail at those wool fairs—somewhat like the dog in the manger—both money and wool are withheld from the public. Nevertheless those very staplers seemed to have the wool at their own price; as when the men to whom I have alluded, and many other staplers, came down, they brought the price with them, and, as Mr. Luccock justly observes, there seldom was more than 1*s.* or 18*d.* a todd difference between one parcel and another, for whatever one sold at, the other growers all expected the same. Thus a grower with an extraordinarily good clip seldom gets the real value for his wool; for were a stapler to come into a county, and meet with a parcel of wool that had been so properly managed in the breeding, with every attention to render it completely what it ought to be, as to be better by 3*s.* or 4*s.* a todd than any other in the neighbourhood, and buy it at that advance, it would occasion such a rumour

that there would be no more wool to be purchased for some time but at a higher than the market price. The plan suggested, of employing an inspector, would afford a more convincing proof of the errors of some breeders and perfections of others, than any mode of proceeding before recommended, as the inspector would have no interest in favouring either buyer or seller; and if the salary were made an object worth his consideration, that would be a strong stimulus to probity and upright integrity.

The staplers of whom I have spoken were brothers; and when they died, their profits, on the very great stroke of business they had carried on, were found not to amount to the interest of the money they had been credited: therefore it plainly appeared that the sellers of wool had received a just price for their commodity; while the manufacturer was served on better terms than he could have been had he bought his article of the grower, independent of the stapler sorting it, and supplying him with the very kind of wool that suited his purpose: consequently this instance, as well as many others, proves the middle-man of real service to the community, in the article of wool.

I have been led into this digression from my subject—the different kinds of short wool produced in the several counties—by accidentally meeting with Mr. Luccock's observations on wool fairs; when finding his ideas corresponded with my own, I thought it perfectly relevant to insert them. I shall now pursue my foregoing remarks.

Monmouthshire.—The fleece of the sheep in this county is yellow, short, fine, and ragged. In some parts of the county the wool differs considerably: a few large fleeces are produced.

Worcestershire.—Some parts of this county produce large fleeces; but the general stock seems to be short and well grown, of a soft and silky texture, and sometimes of a reddish hue.

Shropshire.—The pile in Shropshire has frequently a tinge of redness, and some samples are very kempy, with coarse and spiry tops to the staple.

Staffordshire.—The wool in this county is fine, and the fleeces of a short staple, resembling those of the Sussex breed.

Leicestershire produces some wool said to be fine, grown on Charnwood forest, &c.

Lincolnshire.—A small proportion of the wool in this county is about four inches long, coarse hair, tender, and sometimes the staples grow detached from each other; the colour not good.

Nottinghamshire produces a short, fine wool, well adapted for the clothier's use; and some others of longer staple: it is of a medium fineness, of a good colour, soft, and clean.

Derbyshire.—The fleeces here have a blueish cast; the pile soft, silky, and flexible: it felts well, but is rather too long.

Cheshire.—The wool of this county is short and fine.

Lancashire produces a sort of sheep called Silver-dale breed, highly esteemed for their excellent qualities, and their fleeces.

Yorkshire.—In the north riding the fleeces are open, loose, and coarse, particularly on the buttocks; and the pile is mingled with brown or grey hair. The fleeces in the east riding, though long, are not fit for the comb: the wool grown on the wolds is sometimes white, but not of the clear lustre; the staples are detached, or single; and its pile is straight and elastic.

In the west riding the fleeces are various, some longer, harder, and more elastic than the rest: about Pennestone the wool is short and fine.

Westmoreland.—The wool is here coarse and hairy.

Cumberland.—The mountain sheep produce much the same kind of wool as the above.

Northumberland.—The short wool produced in this county, of the Cheviot breed, is short and valuable, its pile remarkably clear and soft.

Wales.—The Welsh fleece is in short staples, with a fine pile, but more infested with kemps and coarse hairs than any other kind of wool.

SECTION XXIII.

Some Information concerning the Properties of Wool.

IN the present state of the woollen manufacture, the length of the staple is an object of very considerable importance; and the chief qualities in carding wool, shortness of pile and disposition in the hair to assume a crumpled or spring-like form. If the staple be too long, an extraordinary expense occurs in reducing it; and it is the opinion of manufacturers that wool for the finest fabrics cannot be too short, if it only possess that degree of crumpledness which will enable it to form a roveling. The peculiar shriveling quality in wool cannot prevail in too high a degree, if it be destined for the manufacture of any kind of goods which require a close and smooth surface; for the greater number of minute curves which it contains in a given length of the pile, so much the more it may be broken without injury, and every portion retain a sufficient degree of curvature to link itself with its neighbours, forming an inconceivably thin and transparent texture. Most of the wool produced

in these kingdoms is too long for the perfect operation of the card, and the first process through which it passes after it has left the hands of the stapler is to shorten it.

It is necessary that the combing wools of our country should possess some degree of curvature, or disposition to contract the length of the pile, for without it the workman could not form his sliver; but it is not desirable that this property should greatly prevail. The reason why long wool should differ so essentially from short fleeces will be easily understood, if we attend to the operation of the spinning-wheel. In twisting a woollen thread where the staple has been previously broken, and the fragments of it, in the utmost disorder, are united only by their natural hookedness, the turning of the wheel rolls them together without arrangement, and when placed in every possible position. But in spinning a worsted thread, where every hair has been previously disposed by the side of others, in the most regular order, the pile is drawn out in the direction of its length, every single hair being parallel to all those which lie near it; and is twisted in a spiral form, somewhat like the form of a compound screw. If those hairs contracted their length in any considerable degree, they could not be correctly arranged, nor drawn out in that regular order which the work requires; but would be twisted into the thread in an irregular and crumpled form—a circumstance injurious to the yarn, and the goods which are made from it.

The length of pile suited to the comb is about four inches. The hose trade requires a considerable share of that which measures from four inches to eight; and the longer kind is usually destined to the fabrication of the worsted yarn—an article which admits of very great variety in the mode of its manufacture. The shorter

staple is applicable to woollen goods of almost every description, which, besides the whole quantity of this sort of fleeces produced at home, require very large importations from abroad; and no inconsiderable quantity of that pile which has been grown to the length of combing wool is submitted to the operation of the card: it is chiefly that, however, which possesses the contracting property in too great a degree, which is too weak for the comb, or is used to produce articles requiring long and well-raised knap.

The pliability of wool is another of those qualities in the staple which requires the strictest attention of the breeders, being estimated by the manufacturer an essential property.

This short account of combing wool and the effect which the card is intended to produce upon it, will convey an idea of the value of a proper degree of toughness in the pile. The grower may easily perceive when his combing wool is too weak; for if the staple break when strongly pulled with the fingers of both hands, he may conclude it is not proper for the manufacture of worsteds. If he attempt to promote an improvement in the growth of long wool, it is of the utmost consequence that he preserve the strength and soundness of the staple. Mr. Luccock, in his treatise, p. 160, makes the following remark, seemingly as being the general opinion of wool staplers: "Peculiar care is necessary when the proprietor of a long-wooled flock attempts to render the pile finer by a selection of rams carrying a smaller fleece, for there are only few breeds in the kingdom which yield fleeces at once fine and sufficiently strong for the comb. A sensible wool-stapler, who has long observed the English fleece, and whose judgment and candour I have heard spoken of among spirited agriculturists with the respect they deserve, writing upon this subject, com-

plains that by the improvement of sheep in the counties of Huntingdon, Northampton, Leicester, and Lincoln, the qualities of the staple have been greatly injured; that the wool is rendered too weak for the old established manufactures; and adds, 'this is an evil that must soon remedy itself, for deep, strong wool, will become the most valuable.'"

But, on the contrary, the carding wools ought not to possess too great a degree of strength or toughness, because the first process through which they pass is designed to break the pile into small fragments. Nor should it be too tender; for it is sometimes found to be broken when passing through the engine more minutely than the hookedness of the staple will permit; it is then easily dissipated by the motion of the cylinder, and wasted: nor will the cloth, unless the wool of which it is made possess some considerable toughness, endure without injury the violent strokes of the fulling-mill.

I have been very solicitous to be enabled to describe the kind of wool that is of a felting quality, but I cannot obtain any information that would afford a means of judging either by the feel or appearance; it can only be ascertained on trial: but it is not required in worsted goods, viz. stockings, baize, flannels, or any other article not submitted to the action of the fulling-mill.

There seems something singular in the quality of felting wool. I should imagine that wool liable to cot on the sheep's back must be of a felting quality; indeed, to a certain degree, I know it is, as I have had stockings made of it, which felted, or ran up, in such a manner, that after washing they were rendered almost useless. It is allowed to be an excellent perfection in wool for cloth, hats, &c.; and there seem to be sheep of every species which produce wool of that description, though others in the same flock, and with the same feed, do

not; but those most distinguished are the Norfolk, Morf, and the Cheviot breeds of sheep. Many of the South Down fleeces have a similar appearance to the eye; but they are seldom found to possess any felting quality; nor does this disposition appear peculiar to any one sort of hair, as the coarsest hair of dogs, the hair of the camel, dromedary, goat, &c. are all felting; and, as a contrast, so is the fur of rabbits, hares, &c.

Kemps, which have been repeatedly mentioned, not being generally known by that appellation, it may be proper to describe the kind of hair so called. This hair is commonly found on the thighs in the greatest abundance, and is similar to that on the face and legs of sheep, by some persons called *stickle hair*: it is mostly of a bright white colour, sometimes brown or grey, and so intermingled in the fleece that it cannot be separated. It will receive no artificial tint or dye, but from the most corrosive ingredients; and, by its hardness, coarseness, and the sharpness of its points, spoils articles in which it happens to be mixed.

The following statement was received from a wool stapler at Wakefield, in Yorkshire, in 1804.—South Downs: the average weight of fleeces from 2 to 8lb each, price from 2s. to 3s. a pound: the purpose to which this wool is applied is, the fabrication of fine cloth, called light goods. Lincolnshire long wool: the average weight of fleeces, of the best combing quality, from 12 to 15lb; price from 15d. to 18d. per pound: the uses to which they are appropriated are the making of tammies, calamancoes, shalloons, &c.; the coarse portions being picked out, and manufactured into blankets, carpets, soldiers' clothes, &c. The price of wool is very fluctuating, according as trade is either brisk or flat; therefore any price given will go no further than the day; for the stapler who gave this

information says, he has known wool to advance double in the course of one month, and to decline the same. The price per pack, *at that time*, was, the best from 16*l.* to 17*l.*, the average from 13*l.* to 14*l.*; the average length of the very best hog wool was about ten inches, that of wethers from six to eight inches; the average weight of the fleece 9*lb.* Lincolnshire produces the best combing wool; Leicestershire finer fleeces, but they require longer lying in the tops, and many of them are mossy on the backs, which occasions much loss, being carded and applied to the lowest purposes. All wool ought to have an even top, carrying its substance equal from the pelt to the outward end, without tag or rough hairs on the upper part of the fleece. The best fleeces are those of the greatest substance, according to their weight; those that lap up in small bundles according to their weight, are much disliked by the manufacturers, and are consequently of heavy sale. Lincolnshire produces the heaviest and best wool that comes to this market (Wakefield).

SECTION XXIV.

Lord Somerville's Sheep.

LORD SOMERVILLE gave me the following information, in reply to my questions as stated below.

Question 1st.—My lord, was the piece of cloth which your lordship shewed me made from the wool of sheep imported from Spain, of the offspring of those sheep since they were brought to England, or of any mixed breed?

Answer.—All Merino, pure blood; part imported, part bred on the estate.

Q. 2d.—How are those sheep kept, on any particular food; or are they housed during the winter months?

A.—The store sheep on no particular food, but on grass, turnips, and some little hay; no corn: but always give them salt once or twice a week, as the weather is, more in damp than in dry weather.

They are never housed, except in very stormy or snowy nights, occasionally; but when the lambs are yeaned, the exposure must be avoided for a fortnight or so, because the fleece in its nature is so fine, and at first so short, as to be little protection in very cold weather.

Nature, in its bounty, has given them a long down when yeaned, which, as the fleece grows longer, is observed to fall off: the more down is perceptible, the finer will be the fleece.

Q. 3d.—How are they treated from the time of washing till shearing?

A.—The Merino sheep on my estate have never been washed; they are clipped in the grease.

Q. 4th.—Is there any expedient used after shearing, as anointing the skin with any thing, to preserve the wool for the next year's produce?

A.—Nothing is applied to the wool in any stage of its growth.

Q. 5th.—What is the average weight of the wool; and, at two years old, the weight of the carcase?

A.—The store ewes averaged 6½lb this season; but as the stock increases in size so will the fleece. The weight of the carcase is small as yet, not larger than the Rylands; but in France we know they have reached to nearly double that size, still preserving the fine quality of wool.

Q. 6th.—Are they good nurses—Do they make their lambs fat?

A.—They were at first very bad nurses, giving no milk, which was the consequence of their hard keep,

and long journeys twice a year, in Spain. They never have very good udders, but reared their lambs to the full as well as our English breeds: and never have produced on my estate one double couple, or twin lambs, but of single lambs their full proportion on comparison with other stock.

Q. 7th.—Are they healthy—Will they bear the extreme of heat and cold equal to other short-wooled sheep?

A.—They are impatient of heat, and injured by it; but, being so well covered with wool, are not affected by cold in any equal degree.

SECTION XXV.

Sheep Washing and Shearing; some necessary Precautions to be observed in those Proceedings.

Washing.—In washing sheep, the first consideration, which is too often neglected, is, that sufficient time be allowed, after their being brought from the pasture to the wash-dike, for them to cool before they are thrown into the water. I have known sheep to take most violent colds from being put when heated into the dike or pond. Where the water is so soft as to permit, it is usual to steep from eight to ten or twelve sheep in a sort of fold, or vat, so termed; a man standing with a poy to move the wool, and another to assist in putting the sheep to the washer, getting them up the race, &c.: but when so many are kept in the water together, though it is a very good way to get the wool clean, it sometimes happens that some one or two sheep in a number, not being able to bear the water so long, fall into a sort of swoon, and, if caution be not used, they will die. When that happens, it being a season of the year at which there are many sting-

ing-nettles, after the sheep is got out of the water, put a nettle into the mouth and hold it there; this will readily recover the animal, though every appearance of life be departed. After the sheep are washed, great precaution is requisite not to let them pasture where there are sand or gravel pits, or banks, as they are liable to rub, and fill the fleece with dirt; which, as has been before observed, the stapler considers a very great objection to the fleece; for the dirt spoils the colour of the wool, makes an addition to the weight not easily estimated, and occasions much unnecessary trouble in rendering it clean and fit for the manufacturer.

Shearing.—The time of shearing should be particularly observed. Between washing and shearing, the time specified by act of parliament is, not sooner than ten days, or longer than fourteen; for if shorn earlier than ten days, the wool will not be sufficiently dry, nor will it have regained the quality it ought to possess, or what the stapler terms the *yolk* will not be properly risen: and if wool be shorn in that state, or after rain, when in the pile it will heat, lose much weight, and its value consequently be lessened: therefore, great care should be taken that the fleece be perfectly dry when shorn. It is the opinion of some persons that wool shorn when perfectly dry gains weight in the pile, but I think that idea erroneous. In winding wool, licensed winders are by law to be employed: they are sworn to do justice between buyer and seller; not to break any fleece, viz. not to wrap up more than one fleece in a bundle; to lap up the fleece free from dirt; and, in piling, not to face it, by putting the best fleeces in front, but to take care that the whole pile be equally alike throughout.

Putting the sheep in a house one or even two nights before the day of shearing is of advantage to the fleece; as their rubbing against each other softens the wool, and

makes the yolk rise more equally in every part: it also adds some little to the weight, by causing perspiration, and actually renders the wool more valuable. The season or time for shearing sheep varies greatly, both in regard to the different kinds of sheep and situation. It seems advisable to shear sheep which are liable to shed their fleece before that takes place; where there are many woods and hedges, and they are much infested with flies, the first or second week in June appears to be the most proper time; but in open countries, such as downs and marshes, one month later is sufficiently early, as the fleece grows very quick at that season, and the wool will be sufficiently risen from the pelt. In the rich marshes there are many fat sheep, of which the most profit to the grazier is the wool; he consequently obtains a greater weight: and the flies do not infest and gall the sheep in those marshes so much as in the situations above mentioned. As trifling accidents will sometimes happen by the shears, termed *snipping* the skin, it is necessary to have a bottle of the spirits of turpentine ready, and a piece of stick in it, with a small lock of wool wrapped round the end, to put a little of the turpentine on the spot: if the shears have left a sort of tongue, it should be cut off, as the place is much more liable to gangrene when it is not entirely removed; and a small quantity of tar should be rubbed over the sore, to keep off flies. If there be nettles of the stinging kind in the pastures, it is advisable to have them cut a few days before the time of shearing, as I have known sheep materially injured by them.

There is one proceeding that usually takes place at the time of shearing, which should be particularly noticed, namely, *branding*; this ought, as much as possible, to be avoided: but, in some situations, and under certain circumstances, it is perhaps almost indispensable; it may,

therefore, be proper to consider what part of the wool is of the least value. I have observed in some counties they brand low down on the thigh; in others on the top of the head, which probably is a part where no good wool is produced; and in others low down above the tail: but there are many sheep branded on the broad-side, &c. which is certainly very improper, as freeing the fleece from it must occasion great trouble to the manufacturer. I should recommend the mark to be made as near down to the tail as possible—perhaps as conspicuous a place as any, and not attended with injury to the fleece, especially in long-wooled sheep, as it would be clipped off with the dag-locks.

In three or four days after the ewes are shorn, it is necessary to attend to the lambs, as the fags will have left the former, and got upon the latter, which affords an opportunity of effectually destroying them. The mixture for the destruction of these vermin is composed as follows:—Put 1 lb of arsenic to 4 gallons of water, and boil it till the arsenic is entirely dissolved; then add 12 gallons more water, and about fifteen minutes before the pot is taken from the fire, put in $\frac{1}{2}$ lb of soft sope, stirring the liquid very well: this quantity will be sufficient for forty lambs. I have frequently boiled 4 lb of arsenic at once, putting in 48 gallons of cold water, and have always found the application effectual. This is also an admirable preventive against flies. It is a very good way to wash the lambs at the time the ewes are washed; for by clearing them of dirt, the arsenic water can take a better effect; and it will likewise, by squeezing out of the wool more freely, go further. To manage this operation properly, it is necessary to have a tub large enough to dip the lamb in: a man should grasp the fore legs with one hand, and with the other hand take hold of the crown of the head (for the head must not, on any account, be im-

mersed in the water, as it would poison the lamb); an assistant must hold the hind legs: then with the back downwards, the lamb should be dipped so that all the parts infested by the fags are immerged in the water; but the lamb must not remain longer in the water than is sufficient to wet its wool. Another empty tub should be in readiness to put the lamb in on its feet, to catch the water that drains from the wool; one man holding the lamb, while the other is squeezing the wool, to get as much of the water out as is possible: if this process be not very particularly attended to, much of the mixture will be wasted. Great care must be taken not to let those lambs into any place where the pigs, fowls, &c. are likely to feed. This proceeding, properly managed, is a means of making the wool whiter; as the fags not only injure the well-doing of the lambs, but their excrement stains the wool. To perform the operation in the best manner, six men or boys are required; two to dip the lambs, two to hold and squeeze the water out of the wool, and two to take the lambs to the dippers. I have seen it necessary to empty the tub the lambs stand in to have their wool squeezed, every eight or ten lambs. The tubs I use for this process I preserve to brine the wheat in at the time of seeding. I always clip the lambs' tails, and inside the thighs, what is termed opening them, at the same time; which altogether saves the shepherd much trouble, keeps the flock neat and clean, and prevents their being so liable to be infested by the maggots.

Shearing lambs is a practice adopted in some counties: it has been tried by the breeders of long-wooled sheep under an idea that they would grow larger, and require less support in the winter; but, from the information I have obtained, I know that opinion to be erroneous, and that shearing long-wooled lambs is improper, though

very expedient with short-wooled lambs. It never happens that clothing wool is too short, and seldom, if ever, that combing wool is too long, if of a good kind; consequently, the wool that is shorn from long-wooled lambs would be worth more in the fleece than for the use to which it is then applied, namely, the fabrication of hats.

SECTION XXVI.

Pelts of different kinds of Sheep, their Value, and the improved Uses to which they are appropriated.

THE pelts of sheep are applied to various purposes; they are made into rones, scribblers, shammy, basils, parchment, white leather or allum, and glue. The value of the pelt, in the raw state, is from 8*d.* to 18*d.* according to size: all large-sized pelts are the most valuable. A large pelt, when manufactured in the best manner, makes 6*s.*; the small pelt, of a bad quality, is worth no more, when manufactured to the greatest advantage, than 18*d.*

The process of splitting pelts is performed by Messrs. Bovington, with a patent machine, worked by steam. These gentlemen furnished me with the following information.—The pelts of the Norfolk sheep, they say, are the most compact; the next to them the South Downs: they allow the large Lincolnshire pelts to be the most valuable, as they all bear splitting. Many other counties must produce sheep with similar pelts, Gloucestershire, Warwick, Rutland, &c. but the Lincolns are the most generally suited to their purpose. When I was in the place where this manufacture is carried on, I could not, to the outward view, perceive any thing that particularly distinguished one pelt from another, except

in the Norfolk, which were easily known by being marked with some black spots, and more compact than any other I saw. These seemed to be but of one solid substance; while the large long-wooled sheep's pelts have a very visible division; forming two separate skins, with a great deal of grease, or fat, between them, which by this new invention of splitting them is preserved, and many tons of grease obtained. Before this invention, the pelts were pressed with a very heavy weight, but the intended purpose was by no means effected, for there was still much grease remaining in them; and when converted into leather, they would divide in the wear, or if exported, frequently go to decay and rot in their passage. The chief use to which they were then applied was blacksmiths' aprons; but now one part makes parchment, the other leather for the use of hatters in lining hats; the thickest portion of the skin being nearly equal in value to the Norfolk pelt. I enquired particularly respecting the thin long-wooled pelts, such as many of the new Leicesters produce; when those gentlemen informed me, that the thin pelts from long-wooled sheep are of less value than pelts of any other kind, as they are too thin to split, and retain a small quantity of fat which cannot be pressed out. From all I could learn, it appears that long-wooled sheep have naturally two skins, and between them a quantity of fat, which is called the yolk, supplying the wool with that nourishment which produces the great weight and substance of those large heavy fleeces. It therefore seems impossible to produce such a quantity of combing wool, of a proper toughness to bear the operation it must go through in preparing it for the spinning process, with a thin pelt: consequently, in breeding the most profitable long-wooled sheep, nature intended that there should be a regular proportion of pelt, bone, sinew, and flesh; as the extreme of small bones and thin pelts de-

prives the animal of some of his most valuable qualities, particularly *the golden fleece*.

I have long perceived objections to very thin pelts, that they generally clip an unprofitable fleece of wool, and are tender in all extremes of weather; but by seeing the operation of splitting the pelt, I am fully convinced of their impropriety. Indeed, it seems to me clearly demonstrated, that it is impossible to produce a heavy fleece from a thin pelt, and that most long wool by nature requires a deeper support than short wool. The skins being separated at a proper distance to contain the quantity of grease necessary for the nourishment of the wool, may be compared to a rich loamy land producing plants much larger than thin, barren soils. It may be further observed, the short-wooled sheep, having a more compact pelt, not containing that quantity of grease, is another strong proof that the two breeds are distinct, and probably on that account not so proper to be mixed.

I would not have the reader infer, from what I have stated above, that I mean to recommend the extreme of thick pelts, which is not by any means necessary. I have seen some of the best of sheep, very fat carcasses, with an extraordinarily good and heavy fleece; indeed it pretty generally happened that the fleece and carcase corresponded in those sheep termed old Lincolns, which were evidently the best of the long-wooled breed, as the butcher prefers them, and the wool manufacturers deem the fleece superior to every other kind. Messrs Bovington say, the varieties of sheep have become so mixed and mingled, that there is scarcely a possibility of distinguishing the breed of sheep belonging to any particular county, except the Norfolk, and what they term the old Lincoln, which is a very large long-wooled sheep, the pelt of which they use in their manufacture.

The value of pelts has always appeared to me of trifling consideration; but having heard Mr. Bakewell say much about them, I have been induced to make further enquiry, in which I was highly disappointed, as I never before understood that all long-wooled sheep had such a separation in the pelt, and had been led to believe that the pelts of the Dishley sheep had that sort of compactness which the Norfolks are described to me to possess, and were made into leather of a superior quality to those of all other sheep. Mr. Luccock having put me in possession of the number of pelts produced in this kingdom in one year, being 2,464,609, I have made a calculation of their value, which, at the lowest price, or 8*d.* each, supposing them all of the worst kind, amounts to the sum of 82,153*l.* 12*s.* 8*d.*; and if they were all of the best sort, the amount would be 164,307*l.* 5*s.* 4*d.*: then, if sold at only 1*s.* 6*d.* a piece when manufactured, they would give the sum of 184,845*l.* 13*s.* 6*d.*; but if all of the best kind, at 6*s.* each, 739,382*l.* 14*s.*: the difference between all good pelts and thin inferior ones being 554,537*l.* 0*s.* 6*d.* This is an advantage worth notice; but as, in all probability, more than one half of these skins, when manufactured, are exported under various forms, they may be expected, when paid for, to produce three times the sum; therefore, independent of the profit derived from some being made into ladies' shoes, the lining of hats, &c. the pelts of this kingdom probably return 1,386,326*l.* 16*s.* 3*d.* The improvement of Messrs. Bovington's, in their invention for splitting pelts, merits great commendation, as it may almost be said they have converted nothing into something; the quantity of grease they obtain seems to be a real benefit as well as acquisition, for it was before worse than thrown away, as it spoilt the leather.

Note.—The split skins principally used by Messrs. Bovington are the Lincolnshire, Hertfordshire, and Berkshire: it appears, therefore, that even all large skins are not suited for their purpose, as the Norfolk, though large, do not split; and that all short-wooled sheep's pelts are not of the same nature.—I was informed that these gentlemen made Spanish leather, for ladies' shoes, of the best sheep's pelts; but that is erroneous, the leather so called being made from the skins of goats.

From the foregoing remarks on the splitting of pelts, it plainly appears that there are various soils suited to produce very different results in regard to sheep. In the pelts alone, I have shewn the much greater value those of a proper substance and quality are of to the community; add to which, many hands are employed in the manufacture of them, whose wages are partly paid by the foreign consumer; therefore we should certainly endeavour to obtain them with every possible perfection. Nevertheless, the attempts made entirely to change the breed of a county are highly injudicious; and, although I am as anxious to encourage necessary improvements in all domestic animals as any man, I am perfectly convinced that, in taking crosses, we should find our advantage in not deviating too widely from the original stock.

CHAPTER III.

H O R S E S.

SECTION I.

Breeding Horses.—Necessary Precautions in the Choice of Brood-mares.

IT will be unnecessary in this place to particularise the various qualities requisite in horses suited to different purposes, as they are fully described hereafter under the several heads of *Race-horse*, *Hunting-horse*, &c. to which the reader is referred: I shall, therefore, confine myself to giving such general remarks and cautions as are always essential to be observed in breeding this noble and useful animal.

There are many lamenesses, and some other disorders, which are hereditary, and ought carefully to be guarded against, in stallions as well as in mares. The following are found to be of this description:—Spavins, blood and bone, (the bone-spavin by some called *jacks*); thoroughpins; founder in the feet and chest; ring-bones; curbs; roarers; and blindness, without accident: these are all called ‘natural blemishes.’ I know an instance of a very fine blood stallion, but a roarer, bred by Earl Fitzwilliam, which coming into the hands of a farmer, was let out to cover farmers’ mares, and more than half of the foals he got turned out roarers. I also know an instance of a mare that was foundered in the feet, being put to a stallion with the same lameness, the offspring from which became lame in the feet at two and a half years old, though

it had never been broke, put to any use, or been in a stable. But, as there is no general rule without an exception, it may happen that a mare which has one or more of these defects may produce foals free from blemish; though the mare's faults have been known to appear again in the next generation. An instance of this occurred to a gentleman who had a famous hunting mare, which he hunted for some time, and kept her free from all lameness; she was afterwards taken to breed, and produced many foals, every one of which proved to have some natural blemish: this occasioned enquiry being made respecting her breed, when it was discovered that she had been bred from a defective mare. I had a mare of my own that put out a ring-bone; she bred many foals, none of which had her defect, though she produced two that became blind. I could relate many more circumstances of a similar nature.

It often happens that men who breed horses, paying no attention to these considerations, are much disappointed in their expected profits, as mares which prove lame and improper for sale are frequently kept for brood-mares. If the farmer wish to buy one to ride, and he go to a fair of any repute, he will find it crowded with horse-dealers from different parts, in search of horses of almost all descriptions, but especially for the best. Many of those dealers have commissions from gentlemen, without limit as to price: and therefore, although the farmer may have judgment sufficient to pick up a mare that is tolerably clever, active, &c. the jockeys will be ready to run over one another to obtain her from him. The farmer, then, for the sake of present profit, sells the mare he ought to keep to breed from, and puts up with a sorry, stumbling, broken-down jade—lame, blind, or with some other natural blemish. If she do not suit his purpose, finding it not an easy matter to dispose of his bar-

gain without much loss, he gets her covered (as she proves almost useless) by way of regaining his money, and with a stallion of the same stamp, or worse, for half the travelling road or blood stallions are either lame or blind, few of those men who let them being able to purchase one until, by some defect, he is unfit for use, as a good stallion costs a considerable sum. The owner of the stallion recommends him as not a jot the worse for being blind—it was the effect of a violent blow on one eye, and by tampering with that the other became affected; or from a cold, or fever, a dose of physic, &c.: and if lame, a story of the same description is in readiness. When a foal is dropped, it is perhaps neither lame nor blind; but by the time it reaches four years old, some of those natural blemishes will in all probability appear. By such means, if either the breeder or any other person have a mare with the same defects as the sire and dam, one or both of them, before possessed, she is fit for no other purpose than as a brood-mare again; and thus natural blemishes are continued.

Then, in the choice of a stallion, if the mare be defective in any particular, the correction of that only is attended to; for instance, should she be too weak to carry weight, the object considered would be strength merely, without any regard to action. This recalls to my mind an anecdote.—I was in company where one farmer was recommending his friend's stallion, to induce another to give him mares; and at length, after having exhausted his rhetoric in praise of the horse, he concluded by saying he possessed great strength: "Yes," replied the other farmer, "and so does a wooden horse." This repartee is so impressed on my mind, that it always recurs when I see a strong horse shewn without action. There are many stallions exhibited during the season in markets, fairs, &c. which in travelling at the

rate of ten miles an hour for two successive hours, would be tired to a stand-still. A stallion of this description generally has a large head, long legs, and is ugly all over (though, being made very fat, his ill shape is in some degree concealed); in short, such a one as, were he a gelding, would not fetch more than 10*l.* or 15*l.* in a fair! Now, what can be expected from foals so descended? Therefore, as like is sure to produce like, the best maxim is, to collect as many perfections together as possible; for if a man wanted to breed a blind horse, he most certainly would put a blind stallion and mare together to effect his purpose; consequently, by the same rule, to breed a perfect horse, the mare and stallion ought to be free from blemish.

In regard to the particular shape proper for a brood mare, in a general way, a lengthy carcase has produced the best foals; and probably the reason may be, they are mostly the best nurses. There is another consideration in mares to which great regard should be paid, namely, the form of their feet and legs; for, let the mare's shape be what it may, if they are not good, she is not fit to breed from: it is like building a fine, high house, without a foundation—which is sure to tumble down; and so is a horse. A top-heavy horse, with a large carcase and long small legs, is the worst of all others: all legs, in a general way, to be good, must be short.

The most certain method of breeding valuable horses is, to breed from mares and horses that either are or have been horses of great value; as it is wonderful what a horse well descended will pay for keep. By way of encouraging breeders to pursue the plan recommended, I will relate a short anecdote within my own knowledge.—In the year 1797, a neighbouring farmer sold a four-years-old mare to a London dealer for 50*l.* When she was offered for delivery, the dealer refused her, under a

pretence that she was lame, but probably he considered her too young for the price, or, as he thought, had executed his commission better: however, the farmer took her back without grumbling, rode her to market, making her carry sheep-skins, butter, eggs, &c. and hunted her in turn the next winter; in short, she was a horse-of-all-work. In the August following the same horse-dealer again presented himself, and enquired what the farmer had done with the mare: the answer was, he had her still. "Ah, ha!" replied the horse dealer, "I thought you would not easily get rid of her.—Lame as a cat, I suppose." "You are mistaken," returned the farmer; "she is perfectly sound, and has been ever since." The dealer desired to see her; she was accordingly shewn to him, when he told the farmer he would give him the 50*l.* for her. "No," replied the farmer, "that will not do; you must double the dose: the least I will now take is 100*l.*—not a farthing less." After some higgling, the dealer accepted her at the price.—Thus, this mare paid well for one year's keep. She was from a sort of half-bred coach mare, with length and fine features, but middling action; and got by Mr. Allenby's Atlas, which was out of Diana, got by the Duke of Devonshire's Atlas. This corroborates my opinion of the propriety of crossing those half-bred mares with blood horses of the best kind, hereafter recommended.

After I had surveyed Rutlandshire, I attended Horneastle fair, where, in company with two graziers belonging to that county, I was observing on the inferiority of their breed of horses to what they ought to be, or to those of some other counties, when one of them said I was very right; he bought a horse at Lincoln fair, bred in Lincolnshire, at 60*l.*, and had brought him to Horneastle, where he had sold him for 100*l.*: which was as much as six of the foals bred in Rutland would be

worth at four years old, while one of those foals would cost as much to raise it as the hundred-pound horse: thus, by a little attention in breeding, what a difference in profit!

If horse-breeders, possessed of good judgment, would pay the same attention to breed as Mr. Bakewell did with sheep, they would probably attain their wishes in an equal degree, and greatly to their advantage, whether for the collar or road, for racing or for hunting. Mr. John Hutcheson shewed his knowledge in the art of breeding and training, by the number of good horses he produced: he always put the best-proved racing stallion to the best thorough-bred mare, that had given undoubted proofs of her qualifications. Such horses as those are certainly more likely to breed good racers, than a mare and stallion put together which, every time they have been tried, have been distanced.

Before quitting this subject, I would make one further general observation in conformity with the rule I have adopted throughout this work—to recommend what I know to be right—that the best of racing stallions are all crosses: but, as all breeders, if they think the proceeding ever so judicious, will neither be at the expense nor trouble of obtaining first-rate horses, in making choice of stallions, though blood is more particularly necessary, observe that they are compact. I have known many a small blood stallion, though of inconsiderable substance or height, but of great performance, prove one of the best of stock getters; but he was always compact, one part like another, or what may be termed ‘a great horse in a little compass.’ In regard to mares, as I have before observed, if they have but length, with good short legs, short pasterns, round strong hoofs, and wide strong heels, put to a good stallion, I have known them,

in a general way, breed valuable horses; and, although there are serviceable horses of all colours, a good black or bay, without white legs or feet, is the best.

The management of the mares is the next thing necessary to be considered. The proper season for covering is about the first week in May, which is soon enough for any foal, racer or other, as the spring does not set in before the first week in April; for I never choose to have any animal produced until I have got suitable food for the mother's support; and I think a house or stable, with dry food, for a mare giving milk to the foal, does not seem natural. I have inspected Earl Fitzwilliam's stud when they have had foals, as early as the last week in February or the beginning of March, but they all looked poor starved animals.

In breeding foals for all farming purposes, the first week in May is the best time, a week sooner or later. After the mare has foaled, if she have been used to the stable, it is a good way to put her out to grass in some warm well-sheltered field or paddock, and to let her have corn, once or twice a day, for the first month or six weeks; if given in a trough, on the ground, it is better than in a high crib, as the foal will by this means much sooner learn to eat corn, which is very necessary whilst it is sucking on the mare. This I have lately found to be the most proper method of treating foals; and do not think corn is ever more advantageously given, or money better expended, than in keeping the mare very well during the first month or six weeks, while the pasture grass is growing up, as if young animals are once stunted, they perhaps never recover: after the lapse of this time, any pasture that has grass will answer. The working of mares that have foals seems an unnatural practice; though it was very common with my father, but

never until the foal was one month old; the mare was then allowed about half a peck of oats alone, or beans and oats, and when she worked the foal and she had both about a peck a day: in this manner my father raised the largest dray-horses. The time the mares were worked was in June, sowing turnips, for about three weeks; from that time they were kept in a pasture of about twenty or thirty aeres, two mares and foals and about two ewes and lambs or three hogs to an aere, and a beast, if large, to four or five acres, if small year-olds, one to two aeres: thus the mares were never poor, but by the first week in September they would be as fat as seals. The foals were then taken off from the mares, and housed for about three weeks to wean; and the mares were put to hard meat, and worked, as we had sometimes a portion of the latter harvest to get in, after which we began to sow wheat. This is a very judicious method of treating the mares, as the working is of service for making them quit their milk, to which the dry food contributes: and it is a very proper time to give the mares that are in foal better food, as they are about that period liable to sink their foals, which arises from the mare's being on the shrink, while the foal, beginning to quicken, takes some support from the mare, and weakens her blood, consequently she requires more nutritious keep. It was my father's practice, to put the mares that were in foal out at nights in some grass pastures: this is another proper method of treating them, as the small quantity of grass they get keeps their bodies open, which is what nature requires, causing the foal to be stronger when it is dropped, and the mare to give more milk, without so sudden a change, at the time of foaling. It will be hereafter seen, I have strongly recommended putting mares to grass as soon as they foal; and if during the winter those mares lie in grass

fields, being more at their ease, they are not so liable to misplace the foal within them, while mares so treated are freer from humours, such as swelled legs, the grease, the swelling under the belly which brings on the feltrie, &c. for any thing that renders the mare in the least degree unhealthy, must necessarily in some degree injure the offspring. Another rule with my father, worth observation, was, keeping the mares in moderate exercise, by ploughing, harrowing, &c. till the very hour they foaled: I have known a mare, after such treatment, foal at the plough, with the utmost ease, before the harness could be got off. He so much approved of working the mares in foal, that he would suffer those not in foal to rest, or lie idle, in preference. There is an almost certain sign to be observed when a mare is going to foal, which is, the four holes in the paps are what we called *pegged*, viz. covered with drops of the beastlings, which are hard and tenacious like wax; and within twenty-four hours after this appearance the mare is almost sure to foal; and therefore, when noticed in the morning, the mare was immediately sent to the plough or harrows: all this, time and experience have proved to me to be right. In treating on cattle, I have remarked with what ease cows brought to Smithfield market calve, owing to their travelling, which causes their bones to be loose and open, and makes them void their dung and urine freely, giving more room within them, and rendering their pains less strong; the very same effect is produced in mares sent out to work. The sort of stable we used was a shed for each mare, with a fold-yard behind them: at the farther end of the yard was a pond, where the mares could drink at pleasure, except when they first came in from their work, at which time, as they might be too hot, a gate was shut, and kept closed until they were cool. The fold being higher than the pond, the

juices from the dung, &c. drained into the latter, and the water, it being a standing or stagnant pond, would become nearly as black as ink. This was their winter's usage, which I then thought very wrong, though crowned with the greatest success; for I never knew a mare under my father's management sink a foal, or have one misfortune in foaling, and he produced a breed of horses equal, if not superior, to any other in the kingdom. However, when I entered into business for myself, having read authors, &c. setting forth and extolling the advantages of warmth for animals in the winter, I altered my father's system, by building a superb and spacious stable, with gates before it: I would have no fold-yard, supposing the snow, rain, frost, &c. must injure the mares; and the black water I considered highly improper. But, as I have before observed, experience has since taught me, that rain and snow are very beneficial to animals; and the black water is one of the best drinks that could be given, for, being impregnated with salts from the urine and dung, it is of the nature of physic, and better prepared than any medicine that ever was used. The first winter after I had got all things arranged to my mind, I had six black mares, most of them of my father's breed, all in foal; during the winter I never suffered them to touch grass, partly to preserve the dung, and because I thought that cold snow and rain must injure their health.—Now, I might have observed, even in human bodies, that, on the same farm, the shepherd is generally more healthy than the thrasher in the barn; and it often happens that the farmer himself is subject to complaints, rheumatism, gout, &c. which the shepherd and ploughman never experience. When I was my father's shepherd, while the ewes were lambing, by having the ewes to attend and the lambs to suckle, I have been exposed to snow and

rain for six days together, until I had scarcely a dry thread about me; during this time I never changed my linen, and for breakfast ate only cold meat, with bread and cheese, drinking cold ale, which I knew were very superior to warm food, such as the possets, &c. that my assistants used to have, as I found myself better prepared to encounter the weather than those men were, for the hot messes, opening the pores, caused them to perspire, and when exposed to the cold again, they were almost unable to bear it: thus, though perfectly aware of all these things, yet was I so stupid as to think animals would be more healthy by being kept dry and warm.—To return to the mares. About the month of March a brood mare, which had belonged to my father, and had brought many healthy foals with success, slinked her foal, and was so bad of a fever that I expected she would have died. Knowing that if one mare slink her foal, other mares in the same stable generally, or always, do the same, I had the building smoked with pitch, tar, sulphur, &c. and two of the mares taken into another stable; nevertheless, one of these mares, in a few days, slinked her foal: at length four of them had slinked, when I happened to meet with a remedy that put a stop to the other two, which will be given in the section on "*disorders*." Now, this is generally attributed to bad luck; and so I thought at that time, as I took much better care of my mares than my father used with his; after all, I did not see into my error; nor was it till within a very few years that I became sensible of the cause.

In rearing the foals, I erred in the same manner, by treating them with what I thought much greater care and better management than my father. I contrived to have a house by the piece of grass ground on which the foals ran, so that in bad weather I could shut them

up;—as if the foals did not know what they liked, or what was the best for them. But, to shew how far housing or closely keeping foals, or indeed any stock, though more particularly young animals of all kinds, may be proper, I will relate a circumstance that occurred during my practice.—I had a particularly fine dray-colt foal, for which I was bid a very high price, with an intention of rearing it for a stallion: I put it into a very warm hunter's stable, and had it ordered in the same manner—tied up in a stall, combed and brushed—allowing as much corn as it could eat. In the winter it took to rubbing, which I then thought was owing to scurf on the skin and among the hair; therefore I did over the rubbed parts with sulphur, tobacco-water, &c. but to little effect, for it continued rubbing the mane and tail, and different places, until quite disfigured; during which time, and after the winter was passed, the bones in its legs and the rest of its limbs did not grow and increase as those of my father's foals of the same breed. I then began to think that a shed, or house, with a fold-yard and a piece of grass land, would answer better than the hot stable; this led me into the following method, which I published in my first work, and may probably be considered by some persons preferable to my present practice.

Foals should suck till about the middle of September. When first weaned, they must be kept in a convenient roomy house, with a low rack, and manger, for hay and oats. The hay must be sweet and fine, whether it be clover, saintfoin, or meadow: oats in the straw are very proper, as if the foals have not learnt to eat corn while with the mare, oats in this state will go a great way towards learning them: carrots are a most excellent food for foals, as they keep the body open, which is essentially necessary to be observed.

Whatever may be the food you choose to give foals,

a small portion of corn must be added, mixed with a little wheat bran, or pollard, which will be a means of learning them to eat.

Foals ought not to be continually immured in the stable, but should have a grass close to run in. There should be a barn, or stable, in the close; and if there be a fold before the stable door the better, as that will not only shelter the stable, but will afford the foals an opportunity of eating part of their food in it in fine weather, and cause them to grow hardy by taking exercise—so necessary to the preservation of health. A foal kept in the stable cannot possibly take sufficient exercise; nor can it even in a small fold. Air and exercise promote the circulation of the blood, strengthen and invigorate the muscles, cause a regular perspiration, accelerate the animal spirits, facilitate their distribution through the minutest parts of the system, create an appetite, and assist digestion.

In the preceding pages I have given some directions respecting the management of foals during the first winter, which will be found not injudicious. The first winter I was at Slane I kept my foals nearly in this way, though in a rather superior manner to any method I had before practised. The stables being sashed, I had an opportunity of giving what air I chose; therefore the doors were kept shut at night, and the sashes up; in the day-time the doors were kept constantly open. The foals were pastured on the lawn, about eighty acres of good grass land, remarkably well sheltered with plantations: they were fed with chaff from oats in the straw, a quartern of oats being added for each foal, and good meadow hay. I thought they succeeded very well that winter; and I should with difficulty have believed that any plan, with the same quantity of food, could have been devised to more advantage. However, the next

winter, entirely through necessity, the stables, cow-houses, &c. being full, I was compelled to put the foals to the hay-stacks, in a very cold unsheltered place, but dry, there being about the space of one rood to each foal: they were each allowed one quartern of oats only, and housed for about a fortnight, until weaned from the mares, learnt to lead, &c. the same as the foals of the year before; and, to my utter surprise, they succeeded as well again. Now, all the advantage those foals could have in food, was the opportunity of choosing out of the hay-stacks what they preferred; while the other foals had the best chosen for them, together with the best-sheltered pasture I ever saw, a good stable well littered to lodge in at night, and plenty of very fine grass to eat in the day-time. There was red clover hay in the stacks, but the foals seemed only to eat that by way of a change. These foals were never gutty, as foals mostly are on being taken from the dam; nor did they lose their flesh as foals generally do: it is therefore a doubt with me whether housing a foal at all be not improper, if it can be avoided, and whether dry land, even exposed to cold winds, be not an advantage, when foals are well fed. My house stood in this paddock, consequently I could observe their actions: in cold weather they would be galloping about, and rearing up one against another, which, by promoting the circulation of the blood, produced a more equable warmth than when sheltered in a house; and it is also much better for their feet and legs, as it causes every part of their limbs to grow alike, in more regular proportion. When foals, or any young horse, stand upon dung, being hot, it first relaxes and afterwards contracts their hoofs, sinews, and legs, rendering them more liable to catch cold; as when they go into a stable, after getting wet by snow or rain, it may be seen they have a kind of dew upon them,

arising from the heat of the place, which opens the pores of the skin, and lets in the cold air; if they are then taken from the stable, while covered with the dew, it must necessarily be attended with danger. So it is in mankind, a cold sweat always indicates bad health; and the most violent colds are taken by going into warm rooms and sitting before the fire in wet clothing, the heat occasioning the wet on the clothes to strike inwardly. Even in horses of labour, such as hunters, hacks, &c. it is found to be a very bad practice to put a horse in a stable when he has wet upon him, from any cause; even if he be rubbed ever so well, it weakens him: he should be led about, when the wind and air will always be found, not only to dry the hair on the outside, but likewise to close the pores of the skin, rendering him less susceptible of cold. Thus, the foals that are continually out, and have no opportunity of going into a house, are not exposed to any of these sudden changes; and they will always take sufficient exercise to warm themselves: that sort of exercise creates an appetite, causing them to eat their food with more eagerness; and it is well known that animals which eat their food in a careless manner, seemingly as if they either dislike it or are not hungry, seldom thrive.

I have found great advantage in putting foals where there were long or square stacks of hay, which always form a good shelter; and they can in the day-time turn with the sun: add to which, where they have much choice, they waste less, as they pick a little in a place, without being obliged to pull out a quantity to obtain what they prefer. The stacks my foals were put to were large, and scarcely any of the hay was wasted. When, on the contrary, foals are put to small circular stacks, the wind blows sharply round, and is very cold, even colder than in the middle of the field; and there is

a portion of all meadow hay that is soft, which is cattle hay, and horses constantly refuse it, pulling holes in the stack, and letting it drop; though, even in that case, if care be taken to rake it up, cattle do not like it any the worse, but rather better, for the horses' dung and urine.

It may be observed, the largest boned horses, with the best feet, are those called dray-horses, the chief part of which are reared in the manner here described. There being much hay grown in the Lincolnshire marshes, and very little corn, it often happens that they are totally raised on hay, by being permitted to run to a stack of hay or *hobbings*, which is made from grass that the cattle have refused during the summer: this hay, called by the London hay salesmen *huckle-me-buff*, is, in all probability, disagreeable to the horse, as I have found all kinds of grass that animals dislike equally rejected by them when made into hay. But, notwithstanding I have known horses in those marshes at a loss how to eat corn at the age of two years, they grow to an immense size. I doubt whether it is not improper to give foals much corn at an early age, as I think it too hot. The foal I have before mentioned as being kept, what I thought, very well, was affected with the scurvy, causing it to rub so much, brought on by giving it corn, which was too heating; grass, with a little corn, would have been much better: I look upon any disorder, brought on at that early age, as being injurious to a horse's constitution. Mr. Culley, in his work, mentions a Welsh horse which he rode a long time, as having good feet and a sound constitution: those ponies, it is well known, are raised in a sort of wild manner, pasturing on mountains and heathy commons, until they are taken up for use; and long experience has proved them

to be more suited than any other kind of horses for long journeys, and capable of bearing labour to a very old age, better than many other horses that are not reared in so hardy a way, and they are more free from lamenesses and other disorders. But it is reasonable to expect that any animal which has been in the early period of life enured to vicissitudes, will be more likely to bear them when grown up. It may be observed that race-horses, and all pleasure-horses which are raised in a tender manner, soon decline in their vigour: clothing a horse, keeping him in warm stables, and giving hot mashes, are all unnatural; and it has been often seen, that a hunter turned in a paddock, and high fed, has lasted much longer than the pampered horse. Again, it frequently happens that lameness in the horse's fore feet is brought on by standing on the hot manure, and being kept too dry, as a horse is never known to have the same kind of lameness in his hind feet; consequently it must be adviseable to keep the fore feet of a horse moist, by riding him into water twice a day, or even if occasionally made wet by a sponge in the stable it might prove beneficial.

I am further of opinion that foals, when taken from the mares in the autumn, would even be better, for the short period of weaning, if kept out in the open air, and the mares put in a stable for that time; this would strengthen the foals, and likewise be of service to the mares, by occasioning them to get quit of their milk the sooner, as all dry food, even given to cows, that causes their dung to be stiff or hard, makes them decline in their milk. But as I have recommended haltering the foals, and learning them to lead, it being highly necessary to effect that at as early a period as can be made convenient without injury to their constitution, it would

be better done in the spring, when the weather is warm, as a few days at that time would be sufficient for the purpose.

When the foals are taken from the mares is the proper time to smoke the latter, as hereafter directed; for the change of food, with fretting after their foals, is sure to make an alteration in the state of the blood.

The dray-horse I have mentioned as being raised to the greatest perfection in the Lincolnshire marshes, and growing to an enormous size, with all his limbs well proportioned, good feet and legs, scarcely ever one of them to be seen foundered, or having any sort of lameness in his feet, stands high feeding for a number of years, and supports hard work for many hours in the day, exposed to all weathers. This may partly be ascribed to their early treatment, as those horses are brought up without shelter, there being only ditch fences in that county; and although not so high as the mountains in Wales, yet equally cold, as the sea winds are very severe during the winter season.

The winter being over, for the summer's feeding I believe the salt marshes are superior to all other pastures, the very water the horses drink there being impregnated with salt; and the sea air is also highly beneficial to them. I have known a young horse, after being summered in the common fen in Lincolnshire, near Boston, thrive very ill during the winter following, infested with worms, bots, &c. but survive; and the next spring, early in May, being put in the salt marshes, for the first month to shoot, or skit, in such a manner, that his tail seemed to be in one piece, and a stranger would have thought the horse would skit himself to death; but, on the contrary, after he had cleanned out his intestines, like washing the barrel of a gun, he would then dung in a proper manner, and become fat. There are other

lands in marshes that are very fattening, and produce good keep for horses intended for the team, but I do not think them so proper for young horses, when wind and action are required; though, notwithstanding those marshes are low, the earth is firm, for I do not approve of moist, moory, or boggy land, for horses of any description. The next best pasture to salt marshes, for horses of action, are the very high lands, with good water.

The second winter, as a matter of convenience, the horse rising two years old is generally kept in a straw fold: when so treated, he ought to have about a quartern of oats daily, and as much chopped straw as he can be made eat; if mixed with wheat bran it would be considerably better, though that is more expensive; and he should be turned out at night to some grass field—which is certainly a loss of manure, but no young horse ought to be kept continually in the stable or fold-yard, as it is sure to injure him, especially in his feet. A horse judiciously managed will when two years old be as fit for work as the same horse would be by indifferent treatment at double the age: he will thus be able to do something towards his future keep; or, if intended for sale, pay well for such attention.

Some breeders object to giving corn to young horses, it being so like eating money; but I must confess I never sold corn dearer, at whatever price, than it would pay in horse flesh; it will nearly make the difference between a profitable and an unprofitable horse: if a horse be properly bred, he will always pay for corn. Reckoning one quartern a day for two winters, or fifty-two weeks, and taking the average price of oats at 32s. 6d. a quarter, which will be 4s. 0½d. a bushel, the quantity consumed being twenty-two bushels and three pecks, the expense for the two years would be about 4l. 12s. 5d. The whole charge for raising a foal till two and a half years old,

which is generally as early as he can be sold, will stand thus:—

<i>Expense.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Mare covering	1	1	0
Mare and foal summering, 17 weeks, at 5s. per week	4	5	0
Foal at one year old ditto, 26 weeks, at 2s. 6d. per week	3	5	0
Ditto ditto, ditto, at 3s. per week	3	18	0
Foal the first winter, 26 weeks, at 1s. 6d. per week	1	19	0
Ditto second ditto, ditto, at 1s. 6d. per week (straw)	1	19	0
Two winters' corn	4	12	5
Total expense	L. 20	19	5
Clear profit	9	0	7
	L. 30	0	0

<i>Profit.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Average of the best dray colts, sold at this time at	30	0	0

It appears from the foregoing calculation that there are many horses which would not pay for corn: but as the mare would probably be kept constantly in work, that would make a difference of 4*l.* 5*s.*; and the corn, charged for the two years, might perhaps be less by about half, as the foal would consume more of some other food if it had no corn, which would bring that sum to 2*l.* 6*s.* 2½*d.*; in all 6*l.* 11*s.* 2½*d.*; this deducted from the 20*l.* 19*s.* 5*d.*, leaves a balance of 14*l.* 8*s.* 2½*d.* But many of the common drudgery horses, at two years old, do not average

more in value than 12*l.*; thus, even with the above deductions, they do not pay for breeding; whereas the best kind of horse, even for farmers' use, pays about 5*l.* a year until he comes into the hands of the man who wears him out.

Horses, even of the best kinds, will not pay for breeding where land is conveniently situated for carrying the produce to a good market; but in all places it is more worth the attention of the breeder to breed the best of the species.

SECTION II.

Castrating Colts.

THE usual method of performing this operation is, having thrown the horse or colt, and tied his hind legs, drawing them near to the fore-arms, with a red-hot iron, made for the purpose, cut open the cod or scrotum; then with a pair of shears, also made for the purpose, nip the string between the stone and the body, and sear off the testicle.—This seems a cruel operation.

There is, however, a method of castrating colts which may be effected with little pain, and without the least danger; it occurred to me when I published my first work, and since that time I have repeatedly practised it. The method to which I allude is twitching, or cording, in the same manner as performed on rams.—Take a cord of proper strength, though the smaller the better, provided it will bear the pull of one strong man; it must be waxed with shoe-maker's wax, and then greased, that it may slide, or slip, with great facility. If the part be likewise greased, it will twitch the better. Then tie the string very tightly round the cod or scrotum; in the proper management of this the whole art depends: there

is a part just at the end of the stone, where the string of the testicle enters the body, at which the cord must be fixed; for if it be fastened too far from the body, and the cord twitch the stone, it will occasion the colt much suffering, and even greatly endanger its life; and if fixed too near the body, the cord may take hold of the rim of the belly, which, though it do not kill the colt, would give him much pain; therefore, it is very necessary to be correct in this part of the process. The cord being properly fixed, cannot be too tightly drawn (so that the part be not twitched off, which might happen, although I never knew an instance of it; but were such a circumstance to occur, it would be very dangerous): it should at least be so securely fastened that the circulation of the blood, and other fluids, to and from the testicles, may be totally stopped. Thus the scrotum and its contents will be immediately deprived of all sensation, deadened, and will soon suppurate and fall off. —The peculiar knot used in the operation of twitching, and the manner of forming of it, may be learned from the annexed cut.



The age most proper for twitching colts is any time after one week old, if the testicles are come down; for it sometimes happens that they do not appear in less than a month. A horse of any age may be deprived of his stones in the same manner, without the least danger. When I lived at Slane, I twitched the foals at about four weeks old, and they had not the least stiffness or swelling: the shepherd happened not to be present, and the next morning I asked him how the foals went; in reply, he said they were galloping and playing as usual: and in the course of the day I went to see them, when they exhibited no appearance of having undergone the operation.

I therefore very highly recommend this mode of castrating, both for safety and cheapness, as any person may perform it, while it does not occasion the least stoppage in the growth of the foals; and as, at that age, they have not been sensible of any courage from their stones, it cannot deprive them of their natural spirits.

The best time to perform the old operation of gelding is, while the foals suck the mare, in hot weather, when the flies are very strong. By the mare's moving about, the colt will of course do the same; and exercise, with the very great advantage derived from the warm milk, causes the blood to circulate, a suppuration without any festering takes place, the discharge of pus will be gentle and easy, and the wounds gradually heal.

It is necessary to keep the colts with their mothers in the stable a few hours prior to performing the operation, that they may empty themselves. If the weather should turn out rainy before the wounds suppurate and discharge, it is advisable to take them into a stable for shelter, to prevent their catching cold, which might be attended with bad consequences. Great caution should be observed, in every instance, that animals are not exposed to the wet where colds are feared: if the weather be cold, but dry, there is not equal danger; and any horse that has been kept in hot stables, clothed, &c. may be turned out with safety in dry weather: at night is better than the morning, for the horse is not then so liable to lie down, or if he do, to lie so long, as lying on the wet ground is more likely to give him cold, not only from the damp striking inwardly, but for want of exercise.

Castration is frequently performed at a very improper season and age. It was a custom with my father, and the greater part of the breeders in our neighbourhood, to cut colts at the age of one year, and in the months of

April and May; but serious inconveniences and losses have arisen from that practice. Some persons let them go to a still more advanced age, of which I very much disapprove, for two reasons: first, there is more danger, and as they have had longer keep, the loss is greater if a misfortune happen; secondly, it often makes the horse coarse in his head, and injures him in use;—for when he has begun to shew courage, if the testicles are taken away, he becomes more dull and gloomy than if he had been gelded when young, as he cannot pine for the loss of what he never knew.

A colt that has gone uncut until he is one year old or more, put in the stable, and cut in the month of April, when the weather is frequently cold, is liable to swell much, principally from want of exercise, which is of the greatest benefit at that time; but were he cut in the month of June or July, when flies pester the horses, they would cause him to move about, thereby preventing the swelling, and occasioning the suppuration to come on more quickly, without festering: the swelling is also more violent at that age, as the soreness may prevent him from lying down; and the legs of a horse are always liable to swell when he is first brought into the stable, which affection will of course fly to any wounded part.

When colts are cut at that season, and obliged to be kept in the stable, they ought to have warm water until the pus runs freely from the wound. Should the parts happen to be inflamed, and the lips of the wound adhere so closely together as to inclose the matter in the cod, push the finger through them, and make a sufficient aperture for the free discharge of the pus or matter, then thrust a candle up as far as possible. If the danger be great, he must be thrown on his back, and having some tar, a little fresh new-churned butter, with a small quantity of salt, boiling hot, pour the mixture into the cod;—

it cannot be too hot, as horse flesh will not seald: should the inflammation be very violent, and the swelling large, divide a peeled onion, and put it into the orifice. Much walking exercise is required, with warm mash and warm water; as any thing given cold at the time a wound or substance is suppurating, operates as an immediate check.

SECTION III.

Breaking of Young Horses, &c.

I DO not know any proceeding less understood, or more improperly managed, than the breaking of horses. It is generally performed by some idle, drunken fellow, who, if he had ever so quiet a horse to ride, would, in his fits of intoxication, fall from him several times in a week's riding; when, blaming the animal for what arose from his own incapacity, as soon as he is able to recover himself, and get upon his feet, he will beat the horse in the most barbarous manner—a treatment he never forgets.

In general, as soon as the horse is haltered, he is tied to some post or tree, and buffeted over the head with a hat; which he ever after dreads so much, that when any person meets you, and takes off his hat, the horse, supposing he is going to be buffeted, jumps away. A cord is then tied round his lisk, which, tickling him, learns him to kick. He is next, with a long whip, flogged round a circle, a rope, called a manage, being fastened to his head. One foot is then secured, and he is taken to some ploughed land or boggy hole; where, when he is almost heart-burst by being whipped about, some fellow, for a tankard of ale, is induced to mount him. This egregious horse-breaker, who only becomes such

from habits of intoxication, having been, perhaps, a gentleman's groom, and, in consequence of bad conduct, can no longer obtain a character, gets drunk with some of his companions, and tumbles off. Hence the animal is branded with the character of a vicious horse, is allowed little or no meat, and disturbed of his rest at night. Now, by this cruel treatment, if he be a spirited animal, he is irritated into a state of madness, and becomes altogether untractable. But this is not all: the horse-breaker engages to give him a mouth, make him ride round with his head, and light in hand, in a handsome manner. To effect this design, he puts on a bridle, with a very large bit in his mouth, and a crupper under his tail, made fast by a strap, very tight; which soon make both the mouth and the tail sore. Thus, when he is mounted in the morning, he cannot move himself either way but the soreness of the two extremities occasions pain, which brings on anger. By the horse-breaker holding the reins tight, the horse first moves backwards, which is not the *apparent* intention of the rider; he probably rears up, and falls backwards (as what the horse-breaker calls a good mouth, is, that the horse should turn or go either way at the lightest touch of the reins): that, perhaps, not being the design of the horse-breaker, he then either spurs or whips the horse to make him go forward, which distracts him, and he must be insensible what to do, if he would, to please the rider; while, the tail being sore, when he rears up it hurts him, and then he kicks. Thus, by this treatment, the horse learns what is termed to *plunge*; and if the horse-breaker sit firmly, and do not fall off, the master of the horse, and other spectators, crown the rider as a very clever fellow: whereas, on the contrary, he has been the sole cause of the horse having those tricks—he has absolutely been learning him to perform them.

The art in breaking horses is, to prevent their contracting any bad habits. To effect this purpose, when you take the foal from the dam, first halter him, and lead him about. As soon as he patiently submits to be led, tie him to the manger; let him be rubbed with straw-wisps; then take up his feet, and clean them. After he suffers you to do these things with ease, and with apparent satisfaction to himself, turn him into the paddock, or place you intend to keep him in. (It may be necessary to observe, that one person should feed the foal, dress him, &c.) Continue to halter him occasionally, and lead him about, as he will never forget the lesson given him. When you want him for use, let him be put among a team of horses, with a blind halter, and every accoutrement the same as the other horses in the team have, but take care he has nothing to pull. Of the team of horses, two ought to be behind him, and one before him; and the person who drives should not meddle with him in any respect, but let the other horses draw him about. Repeat this until he become gentle: then cause some one to ride him; in that situation he cannot plunge so as to throw the rider, because the other horses will keep him from rising up either before or behind, or springing sidewise. When the young horse has dropped into the habits of his companions, seeing the other horses turn and twist about, he will very soon readily do the same; and by the small bit of the bridle hanging loosely in his mouth, he will become used to it, without its causing any soreness, and you may guide him about (for what with the horse-breaker is called the mouth, is the greater part in the bend of his neck) sidewise, for, being accustomed to turn with the team, he will feel no inconvenience in so doing. It would be better if the bit of the bridle were lapped over with cloth, to prevent his mouth getting sore; for if ever a horse's mouth (*viz.* his

gums and lips) is excoriated, the part when healed will be callous, and have less sensibility in it than any part about him, because the circulation is prevented: therefore, the horse-breaker's practice, of rendering the part sore at the time of breaking, produces an unnatural tenderness, which, when healed, becomes proportionably more hard and insensible.

From the kind of mild usage I have recommended the horse will become managable, or what is termed broke, without expense, as during great part of the time he will earn his meat, for not many hours elapse before, if not forced, he will begin to take his part in the team.

When a man has not a team, the best way to break a horse is, to put a saddle and bridle on him, without reining him up; let the bridle be slack: have no stirrups at first, to hang by the side, as they might frighten him; they are also apt to catch and hang on any thing, which, in that stage, would terrify him much; and if caught in a stable-door, he would probably go in a hasty way through a door-place all his life. After adopting these precautions, take some gentle horse, and, leading the young horse by his side, ride through the most public streets or highways: then, if he is become tractable, let some man mount him; but should he shew any marks of anger at the first mounting, do not provoke him to plunge, dismount, and try him another day, until he will carry the rider peaceably, and travel by the side of the other horse. I have had a young horse so obstinate, that when he was first bridled and saddled he would lie down, and continue so doing for more than one week; nor would he rise until his accoutrements were taken off: but after that time he became the most docile animal possible, never making the least attempt to throw his rider. If that horse had been used harshly at first, he probably never would have been managable. It is won-

derful what may be effected with animals by feeding and temperance:—the man who brought forward the learned pig, which would tell the hour and minute of the day by looking at the watch of any gentleman in the room, play at cards, &c. did not accomplish his purpose by beating the animal, but entirely by feeding and gentle treatment.

My opinion is, that young horses should be treated with much tenderness during their initiation, and their temper never aggravated; for by shewing them kindness they will become fond of the man who feeds and uses them: and the rider ought never to shew fear, as a horse is so sensible a creature that he will readily discover it; even in hunting, if the rider experience the least trepidation, the horse will feel it. When horses on the road start at any thing, it is the practice of some to whip them for so doing, which is very wrong, as anger at such a time indicates fear; and by whipping the horse, if any thing surprise him, expecting the whip, it is sure to make him jump. Others stop the horse, and compel him to go up to the object at which he is frightened; this is a much better mode of proceeding than the former. However, the best method is, to take no notice, but ride on as if nothing had happened. And it may be observed how soon a horse learns a bad trick: if, for instance, a horse travel in company with another that takes fright, he is sure to do the same; again, should a horse, by any neglect, run away with the carriage, he will seldom or never forget it: thus, when a horse learns any thing, good or bad, it is not easily eradicated from his memory. These considerations shew how necessary it is to be cautious in breaking-in horses, to give them time to know what they are about, before they are pushed too hard, to force them to a compliance with your wishes.

Those horse-breakers will endeavour to persuade you,

that they can make any horse ride light in hand, round in his fore end, learn him to walk and trot fast, and gallop the same; but, though there may be some small advantage gained by the manner of riding and using horses, nature will be nature still—it must be in the breeding of horses that these qualifications are formed. The rider, for a short time and small distance, may play off a little: but if he come to travel the horse until he be fatigued, he will be little different from all riders riding the same weight: the horse-breaker might as well tell me, he could, by his superior riding, learn an inferior horse to gallop as fast as Eclipse. The following anecdote is related of his Majesty.—Having asked the groom in his stables what horse he should ride that day, the groom mentioned one, which the king mounted, and, being fond of fast trotting, he kept him to that pace: the horse at length made a disagreeable stumble; at some distance farther he made another: his Majesty remarked it to the groom, who replied it was only an accident, he was not a stumbling horse; however, at a farther distance the horse stumbled again, so that his nose touched the ground: the king then got off, and desired he might have the groom's horse, saying, he thought him the best; to which the groom replied, his Majesty had rode his horse too long on one leg: "Well then," returned the king, "you may ride him on the other, for I will not ride him any more." I think his Majesty's idea worth observation, for I do not admire horses that require so much jockeyship: give me the horse that will carry me, and not the horse that I must carry.

From the method I have projected in breaking horses, the reader may suppose I allude only to those for farming and carting; but I mean every other horse—saddle-horse, hunter, or race-horse. Some persons may think that by breaking a race-horse, worth perhaps a thousand

guineas, in this manner, there would be great risk of laming him: no; with a careful driver, much less than by the common method. Others will suppose it would injure his speed: no; I know a gentleman who reared many race-horses, and the best twelve-stone king's plate mare was bred from a road-mare, by a horse that got many good runners: this mare was broke in at the plough and harrows at two years old, and used in the farming business; but being by chance taken up as a hunter in the spring, then rising four years old, when there happened a very long chase with a fox, at which many of the horses in the field tired, she behaved so well that she was trained, after having been used as a plough mare for nearly two years. Flying Childers was used as a common hack from two till three years old, at which time his merit was discovered in hunting, when running away with his rider, he took an astonishing leap over a quarry, and from that circumstance he derived his name. These are strong proofs that nature will, wherever it has an opportunity, shew itself, either in a tumble-down horse or a galloper; and that the only consideration in breaking horses is, that they may be brought willingly to do what they are able to perform with the least compulsion or severity.

SECTION IV.

Race-horse.—Description; Shape necessary; requisite Attention in Breeding and Training; experimental Remarks relative to Stallions and Mares producing as good Stock at advanced Ages as when younger—an observation worth notice, as many persons are of a contrary opinion.

THE race-horse varying in shape from every other kind of horse, it may be necessary to give a particular description. To begin at his head—His nostrils should be large and expanded, muzzle fine, eyes prominent,

having a fiery, resolute appearance : his ears small and upright, placed near together on the neck ; his neck not so much risen as that of some other horses ; the thropple wide or large (there are some few instances of horses being cock-thropped, viz. having an expansion in the throat similar to cocks), at a distance from the jaws ; and the jaws wide : his head should stand rather out, so that, when bridled, he may pull at full length, and not come in towards his breast ;—horses made in this form, in the extremity of galloping, get their wind with more ease. It is worthy of remark, Eclipse and his dam were both cock-thropped, and of the form just mentioned. I once had a blood mare, a hunter, so made, and she seemed to get her wind with greater ease than any other horse I ever rode ; I therefore consider it a recommendation. The reason I would have a race-horse with rather a low fore-hand, by some called ewe-necked, is, he must not only get his wind more easily, but be stronger in his pull by the bridle, and consequently carry more weight in his mouth in running. His neck should not be long in the extreme, but his withers very strong, shoulders the same (not thin and fine), somewhat like the make of a hare or rabbit, which facilitates quick, strong movement, more than the fine narrow shoulders ; his breast broad, what is termed ‘ a good chest : ’ the arm, or fore thigh, should be muscular, and tapering from the shoulder, met with a strong, straight sinew. His chest ought to be full, and deep in the girth ; his ribs round, so as to form a circular body, not gutty ; his loin or fillets broad, rather high than otherwise.—It may be remarked, the hare is very strong in the loin ; and Eclipse was strong and rather high in that part.—His hucks should stand in, so as to be round with the ribs, or rather within, which denotes strength ; his quarters long ; tail set on in nearly a right line with the back ; thigh strong

and muscular: his hind legs long and straight, particularly the thigh bone (this was very striking in Eclipse, and is seen in all swift animals, the greyhound, the deer, &c.): he ought to cover much ground; should be long below, and rather short, in comparison, above; his legs clean and flat, sinew strong, hoof round, the heel open and wide. It is the opinion of some critics, that the pastern, or fetlock, should be long, but I think otherwise; I know it to be a great fault in a greyhound, in which such a make is a proof of weakness, and I conclude it must be the same in a horse. However, there may be horses deficient in some of these particulars, and yet race; but all the first-rate horses possess most of the good shapes above described.

Breeding race-horses, in theory, seems easy, as no other animals are so much tried; and when the mare and horse have both been first-rate racers, it would be imagined that the foal must prove the same: but this is not the fact. It frequently happens that a mare shall breed two foals, by the same horse, of very opposite qualifications. Sir John Kay's mare Frenzy bred Phenomenon, a most capital racer, got by Marsk; the next foal, by Highflyer, a colt, named Astonishment. For Phenomenon two thousand guineas were once refused, and he once sold for the like sum; while Astonishment was never worth so many shillings. This shews the uncertainty of breed. I could enumerate many similar circumstances in other animals, as well as in race-horses.

But, notwithstanding those disappointments, there is the greatest probability of breeding good race-horses when both mare and horse have been of that description; though I am persuaded much depends on the manner of raising them. They ought to be very well maintained, on firm, dry land, in spacious grounds, where they can take much exercise, and where there is good water. If

the herbage be not very strong, and there are hills and dales in the pasture, I am of opinion it is the better; for a foal accustomed to go up and down hill, and in training the same, when a horse will certainly not run on level ground with less facility. I once witnessed an instance of the want of this education.—A very fine mare, full of condition, about half blood, a fast trotter, and of very good action, bred in the Lincolnshire marshes, and used to a flat country, was brought by a young grazier, to whom she belonged, to shew to a gentleman for sale, when we were going out coursing. The young man being invited to accompany us, we proceeded into very hilly grounds, where there was much ploughed land, to search for hares; after a short time, what with the ranging and some smart gallops in the courses, the mare was either so tired or sulked, that when she came to a hill she would not go up it, and the grazier was compelled to submit. Now, in all probability, on the ground where she was trained, she would have performed as well as any horse in the field. It, therefore, seems to me a good way for foals that are intended to race, and will have difficult grounds to encounter, to learn when young, as early habits are seldom forgotten: however, they should be quite free, and not have any kind of check.

Where I have seen race-horses bred, the mares and foals are generally kept in a small paddock; but it appears to me nature never intended horses of that description to be so confined. I draw my conclusions, in some measure, from having bred and kept many good greyhounds; for I never knew an instance of a greyhound which had received a check, or been cast back, when a pup, that ever made a capital runner; nor did I ever know a dog reared in a town run equal to one brought up with a farmer in the country. In breaking those

high-spirited horses, much temperance, and in training great judgment, are required; for seldom two young race-horses succeed equally with the same management. Some horses require more work than others; a large, bony, young horse, ought not to have so much work as a small, compact, or a moderate-sized horse. I have reason to believe there are many of the young race-horses treated too hastily in the beginning. When I went to America, I took Phenomenon on board, and Bland, the groom, brought with him an iron muzzle, telling me much about his biting; but he had not been more than fourteen days on board before he became perfectly tractable, and shewed an affection which I cannot express: indeed, there seem some peculiarities in those high-blood horses similar to high-spirited men—they are only to be managed with kind treatment, and can never be compelled to submit to any thing. I had also a mare on board that was so wild in training and racing, she could scarcely be kept on the ground; she has been known to break away with the boy, and run very great distances: but by going over in the ship, she became quite docile and tame; and during the two years I had her on my farm, she would let any one she was used to ride her with only a hempen halter, though she was corn fed, and in high condition all the time. From these two instances, I am of opinion that blood-horses particularly require very kind treatment, more so than has been apprehended or thought necessary. Some persons may say the alteration was effected by going over in the ship; but the unpleasantness they encounter on board of ship one would rather imagine would make them mad. It clearly appears to me, those animals have sufficient judgment to know how they are treated; for the mare, although so remarkably wild by nature, would, when in a pasture, come to me, and put her nose to my hand or arm. I

make these observations to shew the necessity of being very cautious with horses in the beginning, to avoid giving offense, that they may be brought with the greater willingness to do what they are able.

I have some reason to believe, that race-horses, at times, become restive and stubborn from being whipped, and will not exert themselves. Instances sometimes occur of horses running in a very superior style one day, and quite the contrary on the following: this I have heard joekeys attribute to standing the muzzle two nights together, or not being in condition, which doubtless may often be the case. I remarked an instance, of Mr. Garforth's grey colt, out of Faith, got by Phenomenon, at York, beating Beningbrough and Benington, two capital racers, very unexpectedly: this horse, some time after, became what is termed *man-keen*, and was thrown out of racing.

Horses will sometimes carry their resentment very far, seeming to bear ill usage long in memory. A gentleman whom I knew had rode a horse for two or three years with the greatest temperance, when one day, as he was riding along the road, the horse trod on a hare; she jumped up, struck the animal under the belly, and made a squall: this frightened the horse, he took to plunging, threw the rider down, and would not suffer him by any means to mount again. Being a favourite horse, the gentleman put him to grass: as it was the spring of the year, he was sent to the marshes, some distance from where the gentleman lived: this was in May, and he continued out of sight of the gentleman till August, when he was brought up with an intention of preparing him for use. He was put in a stable among many other horses, and I went, with the gentleman, to look at him; when, the moment he saw his master, he began snorting, and stamping with his fore feet, seemingly as if, had he

been loose, he would have flown at him. This horse was perfectly manageable and quiet to ride, excepting by the gentleman, for the fright had alarmed him so much, that he could not forget it.—I saw another similar instance, in a horse of my own, which was under the care of a horse-breaker, known to be remarkably clever in his practice, but, like all others of his profession, would get drunk at times. The rider got intoxicated, and the horse threw him; in return, the man threw the horse down, and beat him severely; he then mounted him again, and rode him some time after, without further accident. The horse was put to grass for three months; when he came up, I sent for the same horse-breaker to mount him. He was tied up in a stall, with other horses in the stable, and had shewn no marks of intemperance; but the moment this rider entered the stable, the horse began snorting and striking out with his hind feet, so that the man could do nothing to him without much danger. I asked the horse-breaker what was the cause of all this violence; he said, he did not know, but, like a sensible man, thought he had better let him alone at that time, as he would probably do some mischief either to himself or the rider: and he desired me, the next morning, to let my servant saddle and bridle the horse an hour or two before he came, put a handkerchief before his eyes, lead him out, and set him against some steps, where he would mount him. All was accordingly done: the rider got upon the horse (this was at Doncaster), and rode him into the street, which is the great road between London and York, where many carriages, &c. were passing and repassing. I was somewhat surprised at the man taking the horse into so public a place, and asked his reason: he said, it was the best place he could take him to, as there were so many things to engage his attention, and that meet-

ing with carriages, &c. ready to run against him, caused him to keep moving, to avoid being hurt; whereas, had he taken him to a by-place, the horse would in all probability have been restive, have stood still, and would not have gone off: and the horse-rider observed, that the reason horses were made more tractable in London than elsewhere, arose from the hurry and bustle in the streets. It was by mere accident I learned that my horse had thrown the man; nor would he have told me; but when I mentioned to him what I had heard, he acknowledged the fact. Some men are of opinion that it is right for the rider to keep master of his horse, by shewing the animal his power, and beating him very severely for any fault he commits: but this proceeding seems to me dangerous, for if a horse were made sensible of his own power, he would not carry the rider, and it is therefore much better to gain the horse's respect.— Another instance I saw in the celebrated horse Oberon, belonging to Mr. John Hutchinson, at York races. When he was made ready, by the training groom, to start, the jockey mounted him; the horse instantly began to plunge, and in two minutes threw his rider, who was so frightened, that he got up and ran away, seemingly fearing the horse would follow him. The boy who trained the horse went directly up to him, mounted, and the horse was immediately made temperate; but the boy was obliged to give the horse his gallop before starting. The jockey being in readiness, when the other horses were prepared to start, at that moment the boy jumped off, and the jockey was thrown on: the eagerness those animals have for racing absorbed his attention, and he forgot at that instant the resentment he owed the jockey. Many similar circumstances might be related.

In raising these valuable animals, I would, therefore,

have every indulgence shewn them to support, and all the art that human reason can dictate to assist, nature, such as healthy food, good water, fine air, and spacious grounds in which to take their natural exercise. Greyhounds running so superior when brought up among farmers to what they do when kept by butchers in market towns, must be attributed, not to a deficiency of food, but to a want of the exercise that nature requires, and probably more pure air: and it may be observed, where there are two or more greyhounds kept together, their play or sport is running after each other, taking short turns exactly in the same manner as dogs course the hare; thus, by following the farmer, they learn to get through fences, leap walls, gates, &c. which consequently puts the young dogs in the method, not only of running, but of every practice for the sport. So, the play of young race-horses is similar to racing; and where there are several foals, some one will take the lead, and thus gallop round the field. I have heard a gentleman, who bred many race-horses, say, that by observing his young stud at play he could tell which would be the best runner, as he would constantly be foremost in the play exercise.

Movement.—In galloping, these horses ought to move their legs in a direct line one with the other, viz. the hind legs after the fore ones, so that they may appear to go with ease to themselves; not to roll, what is termed *labouring*, but to proceed in a swimming manner, as the swallow flies, and not seeming to strike the ground hard, or to fight the ground, like a blind horse: and, although they ought to make long strides, they should move quickly, not lying long on the ground, so that their movement seem troublesome to them. A horse, when racing and in full speed, should be seen to run low, with his belly near the ground, and his hind feet up,

not left behind him as if they would not readily get together again.

Hoofs.—It is very necessary, in all young colts, when out in the grounds, to attend to their feet, which are liable to grow out of form, and therefore should be carefully examined. The hoofs ought to be pared and rasped, to keep them round, straight, short at the toe, and up at the heel, preserving the same form as they were of three or four days after they were foaled: for should a colt's hoof get out of shape, his fetlock may grow crooked; and if by such means he lose one inch at every stroke, or stride, supposing him to stride ten feet at a time, he will lose sixty yards in running a distance of four miles.

Brood-mares.—The best brood-mares are most generally of a moderate size; though some small mares have bred many celebrated racers. Lord Derby's Wren is a very small mare, and has produced several very good runners, but generally from stallions of true form and large size: she bred Bellissima, by Phenomenon, a very large mare, and a good racer. At the time I was about going to America I examined many studs of brood-mares, and found it considered an almost general rule, that moderate-sized mares, that had been good runners, bred the best racers.—The form of a mare the best for breeding is, short legs, lengthy in the carcass, but not loosely made, and strong in the loins.

Land preferred to breed race-horses on.—It should be high, dry, and spacious, hill and dale, with good water, and the pasture of quality sufficient to keep the mare and foal both fat. I think it advisable to give the mare corn until the grass is grown to perfection, but not afterwards: a horse will be fat, and thrive well, on very moderate land, if he have but room.

Training land, and situations proper.—Turf of a sort of soil that during all seasons of the year will be the same,

neither hard nor soft. If a horse be trained on hard ground, it will cause him to shorten his stride; for beating on hard ground will benumb his sinews, and make him fearful of striding out. Extremely soft ground has a similar effect, though from a different cause; by sinking deep in the soil, the horse has not the power of getting his hind feet up so quickly; and as it is with the hind feet that he takes his stroke, he must necessarily stride shorter.

Uneven ground proper.—I have heard two very capital trainers say, that a horse which is trained on level, flat ground, can never run well on courses that are hilly.

Air.—The air in which race-horses are bred seems to be of very material consequence. Two remarkable instances have fallen under my own observation.—The Marquis of Rockingham, whose horses were trained on Swinton common, during his time brought many good racers to the post: but Lord Fitzwilliam's horses of the same breed, and with precisely the same management, were not found to run well; there having been many potteries built on the common, with brick clamps and other works near, it was thought the smoke affected their wind: his horses are now trained on Pigborn-leaze, which is a fine open air, and they run much better. The other instance was at Hatfield, in Yorkshire, which, in appearance, is a delightful place for training horses—a large open common, turf fine, on a clean, dry soil, never either hard or soft: at this place there have been many trials made by different trainers, and men of repute, but they never could bring any horses to the perfection they attain at Newmarket, and some other parts; and the only reason that can be assigned is, on one side of the common is a low, marshy, boggy, flat country, for many miles, which is thought to cause the

horse's wind to be less clear. Nor is this to be wondered at; for there is an instance at Balby, near Doncaster, in the neighbourhood of which village, though only a short mile from that town, on the hill, and on a level with the driest and most healthy part of Doncaster, now resorted to for its wholesome air, was a large boggy piece of land, liable to be flooded in wet seasons, in consequence of which, during the winter, this village was noted for agues and fevers: some years ago it was drained, and inclosed, and these disorders have been thereby totally eradicated from that place. Thus, since it clearly appears that fogs and mist are, under particular circumstances, injurious to the human constitution, it is but reasonable to suppose they may have a similar effect on animals.

SECTION V.

Hunting-horse.—Description; the proper Breed; Feeding and Training.

THIS horse is considered the next in value to the racer; it has become so from the hounds running much swifter now than formerly, which may, in a great measure, be attributed to the improvement of land by inclosures, draining, &c. The smell or scent of the fox being much stronger, and lying for a greater length of time, on well-sheltered, rich soils, than on open, barren, exposed grounds, causes the hounds to run what is termed *breast high*, that is, with their heads up, as they can frequently run from fence to fence without putting their noses to the ground; on the other hand, when the country was open for miles, the hounds had to what the huntsman calls *pick it out* (keep their noses to the ground), and therefore ran much slower. Thus a fox-

chase does not now perhaps occupy more than an hour and a half, though formerly the same chase would have consumed four or five hours—a winter's day: the hunting horse must consequently be much swifter now than before, and cannot be bred to keep up with a good pack of hounds unless he be nearly full-blood; for any horse that is not blood is readily blown, and can seldom recover his wind again so as to be able to continue the chase that day; but, on the contrary, a blood-horse quickly regains his wind when the hounds come to a check. It therefore becomes essentially necessary to breed hunters nearly full-blood; and even if quite full-blood the better, could they only be bred with strength and shape proper, but this is very difficult to attain. A principal qualification in a good racer is, to pull hard in the bridle, with his head low, and when in full speed to have his belly near the ground; but galloping in this form makes him unpleasant to ride as a hunter, as it is very improper for him to command his leaps, and he is liable to run into the hedges and ditches, and thereby make great blunders. Thus, it clearly appears, that the racer and the hunter, though both blood, ought to be kept two distinct breeds, differing materially in their shape.

To describe the proper make of the hunter—His head should be small, with large open nostrils, and a quick fiery eye; his ears small and sharp, standing near together; his jaws wide, with a large thropple; his neck rising from the shoulders with an easy curve, and joining gracefully to the head; his head hung on, to use the horse-dealer's term, 'like a rag on a stick;'—for being formed in this manner, he will ride light in hand, and have what the horse-breaker calls 'a good mouth,' which he pretends to give, but it must be natural, as a horse's riding light in hand arises from his make, not the state of his mouth; it chiefly depends on the form of

his neck, and manner his head is set on; for if nature has formed the horse, what is termed ewe-necked, with a large head standing out at the end, it is not in the power of any horse-breaker to make him ride round and light in hand.—He should stand several inches higher before than behind, with his shoulder thrown into the back at least eighteen inches farther than the point of his shoulder joining the breast; the top part of the shoulder-blades should be much short of the chine, the shoulders not being by any means formed like those of a cat, yet not thin and fine upwards, as some horses are; but if the shoulder be well cast back, rather thick, and the blades short of the chine, the saddle is sure to keep in a proper position, so that when the rider is mounted he may sit comfortably, without danger, if the horse make a default, as a trip or stumble, of being thrown off his seat, or of his weight over-balancing the horse's fore legs.—The breast of the hunter should be broad, chest deep, and ribs round, so that the girths may keep in a proper place, without slipping either backwards or forwards; his arm or fore-thigh muscular, and tapering from the shoulder, met with a strong and straight sinew, a bony leg, and round hoof, wide at the heel; the fetlock, or pastern, short; the ten bone rather thicker below the knee than in any other part, so as not to be in the least degree calf-knee'd, that is, having the knee project forwards over the hoof, which is a very great fault: hair is very useless on the legs, therefore the less the better: he should stand straight with the toe of the hoof, but if the toe turn a little outwards much better than in, as he will be less liable to fall down if he make a trip or stumble, and much safer, not so liable to lose his balance; for when a horse turns his toes in, if he be fatigued or over-weighted, he is sure to be unsafe:—however, this is not so objectionable in a race-horse, or

even a hunter, as in road-horses. I observed Alexander was so made, and stood tottering with the knee projecting very much, though he was a good racer.—In a hunter the loin or fillet should be broad and straight, body round, with a good firm carcass, but not larger in proportion than his other parts, so as to appear gutty, nor by any means to be what may be termed *top-heavy*; his hucks should lie in, and riot, on any account, be raw-hucked; his quarters long; tail set on so as to be nearly in a right line with the back; thighs strong and muscular; leg bones flat (roundness is a great fault, legs so made being apt to swell in the stable): his hind leg should not be so long in proportion as that of a race-horse, or so straight; if a little crooked no worse, as he will keep himself rather better together in soft, heavy, deep countries, will make shorter strides, galloping more round, with more ease to himself.

In movement, a hunter ought to go with one leg near to the other, but not so close as to cut; he should go rather nearer with the hind legs than with the fore ones, as going very wide behind, although there are horses of great speed that move in that manner, is attended with weakness in the extremity of fatigue: the hind legs should follow the fore legs in a direct line. A hunter ought to be rather short in the legs in proportion to the rest of the carcass, with very strong arms—a make requisite in all useful animals: and, agreeing with the form here described, he will be longer underneath and shorter above, in proportion, than the race-horse. It may be observed, a hare or rabbit is not short above; but a hunter being required to carry greater weights, and for a longer time, than a racer, it is necessary he should be shorter in the back, and not stride so far at one time: having many soft grounds to pass over, if he were to lay himself out as the race-horse is required to do, it

would fatigue him greatly; therefore it is better he should take short and quick strides; to obtain which, his hind leg must be shorter, and if, as before observed, a little crooked, no worse. The hind leg of the race-horse being straight and long, passes the fore leg much when brought up, and at the moment before he has occasion to take it up again is a greater distance behind him than that of a hunter's ought to be: even in racing, on soft ground a small short horse has the advantage of a large long horse. Mr. Wilson's Maria, at York, in a wet season, the course being of a soft nature, was observed to run superior, and beat some of her competitors which she could not had the ground been hard: the reason was, not that she ran so much better, but that they ran worse. Her superiority arose from her being a small compact mare, of lighter weight, and not striding so far at one time; consequently, in galloping on soft ground, she did not sink so deep, nor was she so far extended, and therefore could more quickly get herself together again. For the same reason, the short horse gets up hills with more speed and less fatigue than the long one; on hard ground, and down hill, the case is reversed; this makes all the difference between racing and hunting, as the hunter has all these difficulties to encounter. Therefore it seems, as there may be many horses and mares found that never had foot swift enough to be proper racers, a breed of hunters might be procured of full blood. I heard Mr. Smith, Lord Yarborough's huntsman, say, at a time when the hunters they had got chiefly consisted of the Highflyers, that they were very good horses for a burst, viz. a short chase, but not worth six-pence for a long day; bearing no comparison, as hunters, to the Goliaths or the Candidates, which were scarcely ever known to tire: the Highflyers are generally large, long-strided horses, and the Candidates shorter and

more compact; affording a fair comparison with the sort I have recommended.

The kind of land I would recommend to breed the best hunters on, should be of a similar nature to that for the race-horse—high, dry, and spacious, with good water and air. The pasture should not be very rich, for when those horses are raised on rich marsh land, fit for the fattening of bullocks, it will cause their fleshy parts to overgrow the bone and sinew, which will not be proportionably extended; and by being made very fat they will not take the necessary exercise, so that when they come to the requisite training, even for hunting, having all that superfluous flesh and fat reduced will weaken them very much, and be liable to fill them with humours; (the grease in horses' heels arises from their blood being reduced by fatigue, so as to be what the faculty call *sizey*, that is, watery, which settles in their heels): all this must necessarily injure the constitution. This process may be compared to the jockey's having to reduce himself by over-clothing, living on improper food, &c. which is found to have a very bad effect on his health, for there is a great similarity between the two preparations.

Training of hunters differs greatly from that of racers, not in regard to food, but to exercise. Little more is necessary in the exercise of hunters besides walking, which ought to be continued, at least, two hours a day: if the horse hunts twice a week, he will require no galloping exercise, as the hunting will give him very sufficient sweats; and although a hunter ought not to be fat, he may carry more flesh than a racer. The gallops, physick, sweats, &c. that are given to a race-horse, are to improve his wind, which in him is equivalent to strength. Every horse must be subjected to that discipline and management necessary to fit him for the work he has to perform:—the hunter will require a certain proportion;

the road-horse not so much; the dray-horse wants little wind, his strength lies in his weight, therefore he cannot be too fat. But large horses of all kinds require greater age, more food, and less work, than compact, smaller, well-furnished horses.

Food.—The food given to a hunting-horse cannot, during the season, be too dry. I may instance Lord Yarborough's hunters, which are fed with oats one year kept, kiln-dried; and during the time I hunted with his lordship's hounds I never saw horses of any description in equal condition; the sweat from them was like pure spring water: after the most severe burst, if the hounds came to a check, when the horses had walked for a few minutes they would be as dry and clean as if just brought from the stable. Therefore I would have the hay intended for hunters, or any horses that require much wind, grown on land producing it of a bent-like hardness, and suffered to stand till out of blossom; and when cut it should be much exposed to the sun and wind, for hay given to this description of horses ought not to be fattening: it is wrong to fatten a hunter or race-horse, as his exercise requires he should possess great strength, and have to carry as little weight as possible.

In my new *EXPERIENCED FARMER*, vol. II. page 107—109, I have recommended a method of preparing food for fattening cattle diametrically opposite to the above; indeed there is only one thing which I judge necessary to be similar—I would have no grass hay put in the stack until it had stood a few days in the cock: for although the hay given to hunters might, in fine, sunny hot weather, seem perfectly dry, and free from moisture, yet if immediately stacked it might take a heat; which renders the hay highly improper for horses, as, by causing them to be thirsty and drink much, it tends to a very bad effect.

I have before said I would have the hay intended for hunters much exposed to the hot sun in dry weather, for which purpose the swaths should be well broken: it ought also, as much as possible, to be preserved from wet; for after being wetted, it will retain dust and dirt, which is very bad in any hay, and is one reason why I reprobate hay made from water meadows. The preparation of hay intended for fattening cattle, and that for hunters, are two very different operations: for the former, it may be observed, I highly disapprove of breaking the swaths, or much exposing the grass after mowing to sun and air; but I think that proceeding right in making hay for horses destined for swift exercise, as by being harder and less juicy, though not so fattening, the horses are sure to have better wind: it is rare to see a horse with broken wind that has been kept in a poor state, the disorder being generally found in horses that are fat (or were so at the time they took the disease), or when eating mouldy hay. However, opinions are various on this subject. I was one day in company with a gentleman who has had great practice in hunting, when he recommended good clover hay, which I think the most improper of all: he argues, that the strongest food is the best for all animals destined to bear fatigue.

In *soiling* hunters in the summer, salt marshes are the most beneficial. Lord Yarborough tried an experiment, by giving his best hunters corn during one summer when at grass in those marshes; but it was not found advantageous; the horses which had been plentifully supplied with oats not being so strong and healthy in the ensuing winter as those that had had the benefit of the salt-marsh grass alone. This shews plainly that horses which have been high kept and over-heated, require a relaxation to cool their blood, render them freer from humours, and

prepare them better for high keep and dry food in the hunting season.

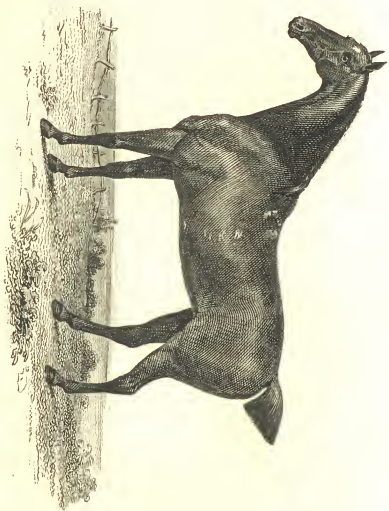
Training hunters, to take their leaps in a cool, easy manner, is a very essential consideration, as it often happens that good leaping facilitates the chase, and gives such relief, as at times to bring a slow galloping horse up to the astonishment of many in the field. At the beginning, a bold rider is the first requisite. The horse ought not to be put to the bar until he is made a complete fly-leaper, which can only be effected by never baulking the horse, or giving him a check when he is going up to his leap; for if the rider do, the horse is sure to remember it: if the rider shew fear, it terrifies the horse. The horse will undoubtedly, at first, make mistakes, and both man and horse get some falls; but if the rider do not tire, the horse will soon accomplish what is required of him. After the horse takes a flying leap readily, then is the time to make him a good stand-leaper, and to perform all kinds of cramp leaps; which are quite contrary to the former leaping. In fly-leaps the horse must measure his ground, and rise at a proper distance; the fly-leap being, in some measure, length, the stand-leap height: the latter is consequently effected by standing as close as he can draw himself, that when he rears up, his hind feet may be as near as he can possibly get them, so that half his body be over the fence before he have occasion to bring up his hind feet. To make him accomplish this kind of leaping, he should be taken to the bar in the hand, without a rider upon him; as from the practice of driving or forcing him over hedge and ditch, he becomes frightened, and will not take the time to rise a stand-leap requires. The pole of the bar must have some furze or holly tied round it, to prick his knees, make a greater substance, and prevent him from hurting himself, as at first he will be apt to lean upon it,

and tumble over: it should be put very low, the lower the better, so that it only oblige him to leap. When he has got used to the pole, and to rear up so as to take the low leap with composure, keep raising it higher and higher; by which method of proceeding he will learn to leap any gate or wall as high as, when he is on his hind feet, he feels with his knees he can command. The horse is then a complete hunter, being prepared for all sorts of fences, and will carry his rider with as much safety as he will gallop on the turf.—Leaping with facility comprises nearly half the value of a hunter.

SECTION VI.

Road-horse.---Description; particular Action necessary for the Ease and Safety of the Rider.

THIS, in a general way, is not a horse of so much blood as the hunter. It often happens that thorough-bred blood-horses are unsafe in their slow paces; therefore they are not frequently used on the road, superior speed not being required. Although there are hacks that will trot seventeen miles within the hour carrying twelve stone weight, it is seldom that those horses are pleasant on the road: by their long stride they mostly go loose in their slow trot, and shake themselves; thus they in course shake the rider, and if a horse do not carry the rider with ease, he cannot go with ease to himself. Much boast is made of a road-horse trotting from fourteen to nineteen miles in the hour; but there is little real use in that capacity, for no horse, as a hack, can travel more than from twenty to thirty miles daily, when kept to it for a length of time: nor will the constitution of a horse, with the best care and good keep, enable him to support more than six miles an hour, on the



ROAD HORSE.



average, for a continuance. If a traveller ride twelve miles to breakfast, and eighteen to dinner, it will be found hard work for a horse, continued the year round. A road-horse that can trot ten miles in an hour occasionally is fast enough, if he do it with ease, and without pushing, rattling the hind feet against the fore shoes, frothing at the mouth, throwing up his head, stumbling, or making many false steps. A horse requires much time both for rest and feed; and he will take from five to six hours a day to go the distance I have mentioned: all horses that may fairly be called travelling horses carry a man and a pair of bags, weighing together eighteen stone or upwards. The work of horses rode by farmers about the farm, and to market, varies much from that of a real travelling horse, as it is seldom more than ten or twelve miles to market; but those are the description of men who frequently extol their road-horses as being fast goers, though not tried for more than one or two hours at a time; and no horses are in better keep and training for the purpose, as the farmer's rides over his grounds afford the most beneficial exercise a travelling horse can take. The best height for the road-horse is about fifteen hands, or if an inch under better than over: it is also a very good size for hunters and race-horses; though the latter, of great performance, have generally been higher. But as the most desirable horse for all serviceable purposes, or what is termed an every-day-horse, is one of a compact form, I would recommend him to be of firmer mould, with more substance according to his height, than either the racer or hunter; which denotes a harder horse, that does not require such pampering or extraordinary grooming. But there are few of the horses at present made use of as hacks, that have not a cross of blood, and they may probably be capable of performing more work in less time; but whether they

would be able to support that additional labour during a whole year is very much to be doubted: however, while the man who rides his horse thirty miles a day, at the rate of five miles an hour, will, excepting misfortunes, have a fat horse at the year's end; the man who travels the same distance daily, and rides ten miles an hour, will certainly have a poor horse. The shape proper for a hack should, therefore, be as follows.—A small head, with large nostrils, and a quick eye; short ears, sharp at the ends, standing upright, and near together on the head joining the neck; a rising fore-hand; his shoulder-blades cast well into the back, but the shorter or farther below the chine the better, as a horse for the road cannot shew a worse fault than having shoulders like a cat; nor would I have him fine in the chine, as that is an indication of weakness: his withers should be strong, but fine in the pole, viz. the back of the ears: his back straight, and flat, or strong in the loin, though not short in the extreme, but so that there be a sufficient space for the saddle to stand between the shoulder-blades and the huck, to carry the rider in such an easy manner as not to press on either; for if the back be so short, he is sure to be uneasy to the rider, and consequently the weight of the rider will be oppressive to the movement of the horse. He should be high in his ribs, and round in his barrel; his breast broad, with a deep chest: by being so made, the girths will stand at a distance from his fore bows; and, as he cannot be gutty with such a make, they will rather slide backwards than forwards, which, of the two, is the best: but a properly-made road-horse will carry his girths in the centre, equidistant between his fore and hind legs, and want no crupper or tail-band, which makes a horse look more graceful:—he had better want a breast-plate than a tail-band. He should be straight in the hind quarter, his hucks

lying close, or round, rather within the ribs; his tail standing in a line with the quarter: thick in the thigh and arm; short in the leg, with flat bones, short fetlocks, and a round hoof: short in the toe; wide in the heel; when standing, he ought rather to turn all his toes out, for that position renders him both stronger and safer. He cannot move with one leg too near the other, provided he do not cut; for when a horse is in motion, as he must have two feet off the ground, by keeping his legs near together, he supports himself the more firmly. By one leg being in a perpendicular position, with his toes standing a little out, he is much safer; for if he make a trip, he would not so soon lose his balance, or get over his knee. The safest mare I ever rode, about half blood, turned out her fore toes much: on the other hand, a horse that was calf-knee'd was the most unsafe. This horse was, in every respect, proper in his form to carry weight, but calf-knee'd, which is standing in a bending manner, with his knees projecting, so that the leg is not straight: his toes rather turned in. I mounted him at Doncaster, where I then lived, and in riding him to Rotherham he came down twice. This horse had been purchased at Rotherham, and was a noted hack; but the tradesman to whom he had belonged, who used him two years without discovering a fault, rode only eleven stone, while I, at that time, rode about 17 st. 10lb: thus, a horse intended for the road, with calf-knees, is dangerous to carry weight, though with a very light weight the defect may not be perceived: however, let his make in other respects be what it may, or even his action, the weakness consequent on this form renders the animal of much less value. The shorter a road-horse steps the better, if he is but quick (for light moving is equal to strength); and by keeping his legs under him he does not tire, like a

horse who oversteps and fatigues himself: nor does he beat the ground so hard, therefore his feet and legs last much longer.

The colour of hackneys is not much regarded; good ones are met with of all colours. The breed has been crossed by blood-horses, until there are very few stallions of the true road-horse kind to be found; the sort of horse commonly made use of being such as proves too small in size to suit the coach, or deficient in speed for hunting. These horses may be bred on any soil; and trained in whatever manner is judged proper to qualify them for the work they are to perform; for travellers now generally go in carriages, which may have arisen from the great improvement of the roads; and the blood-horse not being so safe-footed, the present breed, having much of that blood, may be more apt to stumble.

SECTION VI.

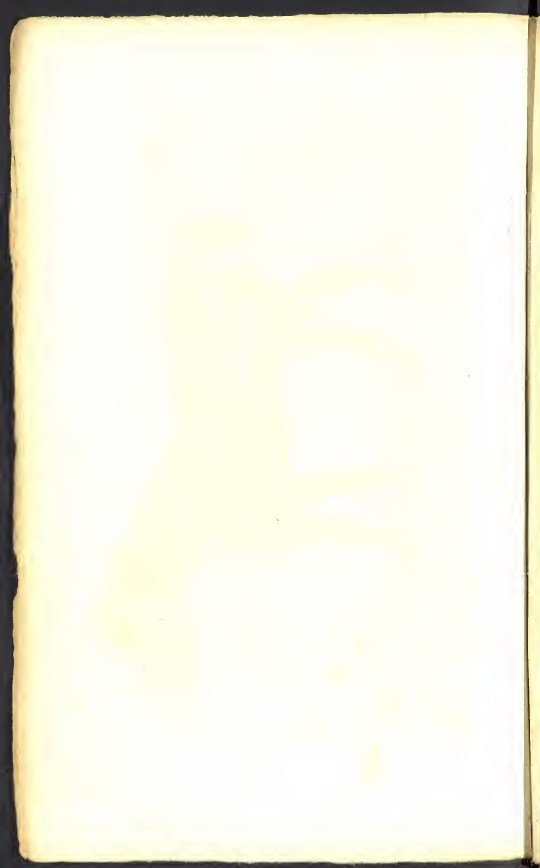
Bay Coach-horse, or Yorkshire Horse.—Description.

THIS horse is in colour bright or brown bay, with black mane and tail, and of large size, from sixteen to seventeen hands high. The best of the kind are well formed in their upper parts, have good carcasses, and a lofty appearance: they are high in the fore-hand, and their shoulders lie well in the back, with rather large heads; their ears are long, but upright, and stand near together; their legs and feet bad; the legs round, and much inclined to swell in the stable: they have steep hoofs; and, although short in the pastern, are frequently calf-knee'd, standing in a tottering manner, the knee joint overhanging the fore part of the foot or hoof, which, notwithstanding the bones are large, causes them to be very weak in the legs; and, from their great weight, are apt



COACH HORSE.

Published by W. & A. G. S. & Co. 10, Abchurch Lane, London.



to tire, consequently bad travelling horses. These horses, for some years past, have paid the breeder very well; but are now much out of fashion, having given place to horses of a smaller size and more action, with more blood: indeed, in the carriages of noblemen and persons of fashion the very best blood horses are in general use, which are more to be recommended than those above described, as they excel for all the purposes of a gentleman. These large coach-horses, from colour and shape, had some appearance of action; but they are the most dung-hill horse we have in England, or what may be fairly termed a stand-still horse—more show than use. They have a most noble and elegant appearance in the streets of London; but when they come to travel on the roads as post-horses, they can proceed little faster than 'so many fat oxen; for after they have gone a short distance, at the rate of five or six miles an hour, they appear as if their limbs were about to separate and fall to pieces, their hind legs dragging behind them as if they would never get them from the spot they stand upon, stumbling with all their feet, constantly chafing and tossing up their heads as if they were attempting to throw them off, froth dropping from their mouths, and sweat running, so that it is distressing to see them. Nevertheless, these horses may be said to be good dealer's horses, though the most deceitful animals on earth. When the horse is shewn by the dealer, he comes out of the stable primed, a man with a whip at his heels, and looks ready to fly away. This attracts the eye, and has not only deceived persons who have bought these horses for use, but in the long run the breeders likewise; for from the very high prices they were sold at for a time, the stallions of the same kind, when shewn in the markets and at fairs during the season, have been imposed upon the breeders by deceptions similar to those they themselves practise. These

horses—after being drilled, in the same manner as soldiers, during the winter; learned to stand stretched out, and to walk and trot short lengths—are furnished with an elegant bridle, lapped, and hung with ribbons; a fine scarlet cloth, ornamented with yellow, looking at a distance like gold lace: and having been primed, one man leads them forth, while another follows cracking a long whip. With all this parade and trick, the horse attracts many beholders: when he trots in the streets, he makes fire fly, and covers a great deal of ground; proceeding as if he had a small fence to go over every stride, which some persons, even judges, call bending his knee well, and thus, by moving above his ground, constituting a safe goer: but this opinion is erroneous; as being sure-footed depends, in a great measure, on the make of the fore leg, which should be so formed as not to have any weakness about it, and on the manner in which the animal sets down his foot. There are some horses naturally so defective in their make, that they cannot be kept from falling; and no form is more likely to occasion stumbling than that of the overgrown bay coach-horse—long legged, heavy large carcase, or what may be termed top-heavy, and consequently not nimble. Quick, light action, in a horse, is the most likely to retain him on his feet; that, by keeping his legs under him, if he make a mistake with one foot, he may readily replace it with another. But those horses that are said to bend in the knee, lift their feet high, striking the ground very hard, by which means they benumb their sinews and feet, and break their hoofs; therefore, I look upon a horse's lifting his feet very high to be a fault: in a moderate way is the best; and in their motion to seem to have the hind feet under them, and their fore feet before them. However, the form of an animal for riding necessary to render him certainly safe, is, I confess, in some respects, almost incom-

prehensible. For instance, the ass, which is of a very improper shape for a horse, though his movement is somewhat similar, is yet found to be surer-footed than most horses, considering the burthens he carries. The ass is long in the back, with shoulders standing forward in the neck, and throws all weights forwards that are laid upon him; all which are indications of the horse so formed being unsafe; yet this animal is safe, though he has nothing to recommend him as a properly-made animal for strength and safety but his legs, they being short and well made for strength. I know no animal that has so much bone in the knee in proportion to his other parts; and when moving he does not lift his feet high, but keeps his fore feet before him, and his hind feet under him. I have known some ill-shaped horses, termed cross-made, that is, not ornamental, prove themselves of wonderful performance; but I always found such horses to have good feet and legs, well formed, though frequently sickle-ham'd—crooked in the hind leg (this I consider a recommendation, as it makes the horse always keep his hind legs up, under him). I therefore conclude it is a good maxim, in the choice of a horse, to pay very great regard to feet and legs, for the horse cannot be good if those parts are imperfect: as occasional faults must be put up with, rather submit to some others than neglect the feet and legs.

The coach-horse to which this section refers has much shape to recommend him, but the worst feet and legs of almost any animal I know. I have remarked his being fatigued with going short distances, and the tiring of horses is generally attributed to a want of spirit and resolution; but whether that opinion be correct or not appears to me doubtful, for if the support of a building give way, the superstructure must fall. Now, the ass is scarcely ever known to tire: it is said, and I believe re-

c
corded, that an ass, though in this country it shews no fiery spirit, has been known to travel in twenty-four hours one hundred miles; which, at five miles an hour, it would take him twenty hours to perform, leaving but four hours for rest; probably as far as a horse would go in the same length of time, allowing the necessary refreshment. The blood-horse, which has frequently accomplished astonishing performances in regard to distance in a short space of time, is supposed to be supported principally by his wind; though the bone and sinews of the blood-horse are said to be stronger than even those of the dray-horse, and it is asserted to have been proved that he will bear more weight, standing, than any other kind of horse. Great injury has been done to the breed of horses by the introduction of those coach-horse stallions, under my own observation, in the county of Lincoln. There were many brought out of Yorkshire; particularly one, thought to be a very fine stallion, bought by Mr. Bourne, of Dalby; and another, purchased by Mr. William Hairby, of Spilsby, which was so fine a horse as to obtain the name of the North Star: those two horses were bought of Mr. Bell, of Leckinfild, in Yorkshire. Mr. Bourne and Mr. Hairby, being both spirited men in endeavouring to improve the breeds of animals, obtained many mares of excellent shape and power; and the offspring, while foals, and two and three years old, were much admired, and sold at high prices; but when they came to be tried, they proved such dung-hill creatures, as to be worth little for use. These horses had the appearance of blood, with large bones, very little hair on their legs; and by their pedigree it appeared they were descendants of Flying Childers. All this was a great temptation to the breeders; I for one was taken in, by buying a mare of this breed, which had the appearance of doing every thing, but proved of indifferent

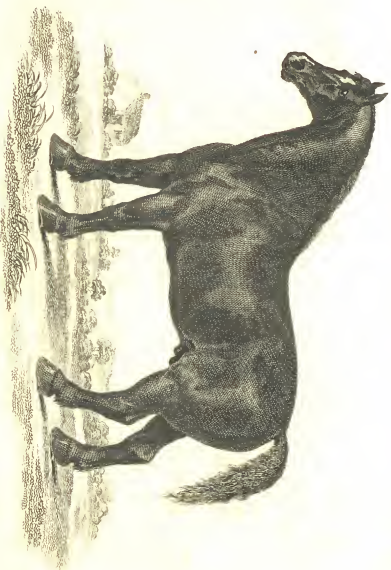
performance. The day after I purchased her, I had to go about thirty-four miles, to buy another mare for my father; but by the time I had rode twelve miles she was completely tired, stumbled and blundered about, tossed up her head, foamed at the mouth, and threw the froth all over me. Having never before rode a tired horse, I was much disturbed, and began to fear I should not reach the house of the farmer to whom I was going: as to spurring or whipping, it would have had as much effect on a wool-pack. At length, with much difficulty, I reached the farmer's house, and bought a mare;—a most beautiful creature she was, and as good a hunter as ever went into a field: this mare was a descendant of a son of Regulus: I rode her home, and got the farmer to send my beast of a mare back the next day. I have mentioned this circumstance the more fully, as I shall in this work recommend a cross of blood for the improvement of the dray-horse: but I as much believe Mr. Bakewell's bull Twopenny was a descendant of Flying Childers, as that this breed of horses originated from him; and if any man would have given me another, confining me to ride it, I would not have accepted it. I was not the only person so served, and when the breed came to be known, the breeders might as well have offered a cow to ride for sale, as a mare of that kind. These horses have been of very great injury, as the breeders were compelled to breed from many of the mares, and the descendants would naturally possess some of their faults. Before that time, a road-horse of proper make, and very good action, but smaller size, was in general use; and the fashion of gentlemen's carriages being large and heavy, they required strong cattle, and black horses were preferred: but bay ones afterwards becoming the rage, the prices at the same time greatly increasing, occasioned even many cart or dray mares to be put to those horses, partly for the colour.

This change in fashion had the unfortunate effect of almost annihilating a very useful breed of horses, at present much wanted, as they were about the size of the coach-horse now used, and were valuable for either a light carriage or for the road. However, it may have had one good result, that of affording to some persons a knowledge in horses which they did not before possess; I probably should never otherwise have known, as I had been in the habit of riding blood-horses, descendants of Regulus, Goliah, Candidate, &c. what was meant by a tired horse: I had formed an opinion that it implied some defect in management, either by improper keeping or bad horsemanship. This experiment proved to me the necessity of breed in horses; and that, though good keep will cover many faults in the appearance of horses, it will not correct defects in movement, enable them to travel long distances, or amend bad legs and feet. I am also of opinion, that when blood-horses are said not to be so safe as some other kinds, the fault lies in the feet and legs, as some of them are apt to have long weak pastern joints and narrow heels, with small hoofs; hence, if they have great weight put upon them, that part being deficient in strength, and the foot narrow, they stand in a tottering manner, their burthen is thrown on one side, and they are very liable to fall.

SECTION VIII.

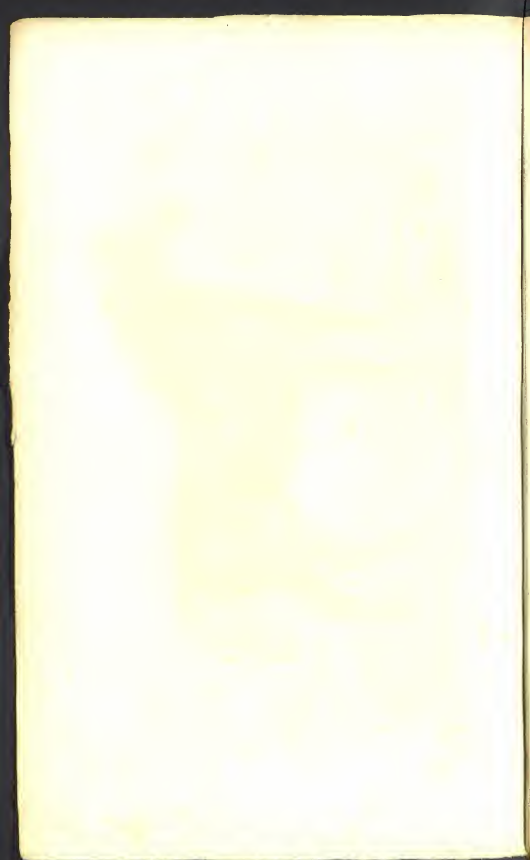
Dray-horse.—Description; Situations in which he is bred to Perfection; his Use; &c.

THIS horse is the most noble animal we raise in England. His colour is mostly a very bright black, with some white on his face and legs; his form is large, with much bone, long mane and tail, and long hair on his



DRAY HORSE.

Published from a photograph by H. Schreyer, 90, Avenue de la République, Paris.



legs; but, from some crosses that have been taken, there are horses of all colours as large as the black dray-horse. To raise this horse to perfection requires good keep, very fertile land, and, from some trials that have been made, it appears that climate also has some effect. The farmers living in Surrey, Middlesex, and many of the counties in the vicinity of London, from the extremely high prices they have paid for the two-year-old colts (as high as from 30*l.* to 40*l.* at that age, and no horse bred for real use only pays so well for raising, or for what he consumes, with the least risk and expense in rendering him fit for market, as he wants no more to prepare him than a fat bullock), have been induced to purchase mares and stallions from the counties where they are bred, and brought to the greatest perfection, namely, Nottingham, Leicester, Derby, and Lincoln, in which latter county, in the marshes, are, I believe, produced, in a general way, the largest at an early age, many of them standing seventeen hands high at two or two and a half years old, and well-grown in their carease, furnished like a six-year-old, when bred and raised in other parts; for, from the same mares, and the same stallions, they cannot be raised to equal size, at so early a period, in the southern counties. Those farmers say, that the Lincoln, &c. dray-horses are larger and better furnished at two years old, than they will be with them at double the age. I have been led more particularly to notice climate from my own experience.—Where I was born, in the middle marshes of Lincolnshire, the greater part of the farm my father occupied was very poor, cold clay, and none of it rich; nevertheless, he raised the large dray-horse in the highest perfection on that farm. Now, in those counties near London, there certainly are many parishes of much better qualified land, for most purposes, than the land on my father's farm, and that will carry a larger stock

per acre; but, notwithstanding this, the domestic animals of every kind our land would maintain were larger, and especially this species of horse. This corroborates the opinion I have repeatedly given, that there are certain situations better suited for different kinds of farming, and the breeding of animals, than others; for it is a very erroneous idea that any one species of animal will thrive and pay the breeder equally well in all parts.

I consider this horse as a most valuable animal for the purposes he suits; which are for drays, coal-waggons, &c. in London, and other cities and towns. The farmer buys these horses at two years old, uses them for all farming business for three or four years, and then sells them, at an advanced price of from 15*l.* to 20*l.* per horse more than he gave for them, for town labour. When a person unacquainted with the proceeding, travels through different counties, and sees four of these horses in a plough, or at times more, he is filled with surprise, knowing, perhaps, that he is ploughing land of as stiff a nature with a pair of horses much smaller, never considering that circumstances alter cases. There is a certain proportion of these large horses required in cities and towns, for the purposes before mentioned, but for which they are unfit until they have attained the age of five or six years; and as they are not wanted where bred, the mares they are bred from, and the fillies, in most cases, doing the breeder's work, they are employed in the farmer's service during the interval: thus the breeding them in one place, and training them in another, become a sort of trade, to which there is a profit attached in each stage, till they reach the hands of the persons who finish them: and when worn down with old age, misfortune, &c. they become the food of dogs and cats:—furnishing subsistence for these animals forms a very extensive business in London; and dogs and cats

are of great use in this city, in consuming dead horses, cows, &c. and all kinds of garbage, which is of very material advantage to the inhabitants, for, while the boiling and vending what is wasted in many other places maintains numbers of people, the air is thereby kept more healthy than it would be if carcases, &c. were left to putrify and decay.

Training these horses is a consideration not frequently thought very essential. The farmer, who buys them at the age of two years, gives them light work; instead of each horse drawing half a plough, he draws only one fourth: but, notwithstanding he, in appearance, seems able to draw half the plough, and to perform all other work in an equal proportion, he is not so in reality, for his bones, though large, are but a cartilaginous substance; and, at the same time that he would require much more food to support him, harder labour would stop his growth, and even draw him out of form: nor would he ever be so well suited to the purpose for which he is intended; as, in the first place, he would not possess the necessary weight to enable him to draw the heavy loads frequently conveyed in the streets of London, and which often cannot be divided, even were dispatch in business not a consideration, while horses that have great weight in themselves do not slip on the stones as light horses do; in the next place, this horse having been used by the farmer for two or three years to light burthens considerably beneath his strength and power, he never knows what it is to be stopped when in the act of drawing, and thus becomes what the waggoner calls 'true drawn,' and will take a standing pull for several times together, without being put in fear or fluttered. It may be seen in the London streets, even in frosty weather, when the horses can scarcely keep their feet, how they will continue their endeavours: while in many

farmers' teams, in various parts of the kingdom, if any thing stop the horses, so that they come to a standing pull, they will begin to prance about, be restive, and, if they are whipped, go back instead of forwards; all which is owing to putting horses when young to heavier weights than they are able to draw with ease.

This most valuable breed of horses pays the farmer from 5*l.* to 7*l.* a year for three or four years' labour, which is probably as great a profit as any farmer's animals return him for the food they consume; at the same time they do the business of the farm, though it appears that half the number of aged horses would perform the same labour: I, therefore, think these horses of too slow movement, which fault ought to be rectified by the breeders. However, this would be with difficulty effected; as these horses are first bought by the dealers, who will purchase any horse of fashion, and large substance, at the highest price, without the smallest regard to his movement, which is certainly very material in all horses, as power and action are the two most necessary accomplishments. I look upon the dray-horse, of the best kind, to have better bottom than the bay coach-horse, with a more lasting spirit, but as not being quite perfect in the form of his limbs. In the first place, the extreme roughness of his legs, with much hair and skin, seems wrong. The hair might be of some use when the roads were in an unimproved state, very deep in mud; and when, in frosty weather, with much ice, the horses in drawing had to break their way: Nature in all probability intended the hair as a preservation to the heels, to guard them from cuts and bruises; but as the state of the roads is much improved, that superfluity might be done away. Mr. Bakewell, in the latter part of his life, threw great contempt on the hair on horses' legs; his argument was, it took some support that might be saved.

I have great doubt as to the truth of his argument; but, at all events, so much hair is at least useless; while those horses with long hair, thick skin, and frequently fleshy legs, are apt to grease, and their legs to become ulcerated, which often brings on a species of farcy said to be infectious: there are many kinds of the disease, but this I know is *not* catching. But, notwithstanding Mr. Bakewell exclaimed against the hair, he for a long time produced horses with remarkably long hair on their legs, even so that the fore part hung over the hoof; and, although Mr. Bakewell was much celebrated for this breed, he did not produce them so free from faults as some other men: his horses had small feet, with hoofs that broke much in use, not keeping the shoes properly on their feet; and horses with small feet slip more in drawing on the stones than horses with larger. His horses were also of an improper make in the neck and shoulders; the neck being very much risen, and the shoulders lying back, so that when the collar was put on, the horse drew, in any great extremity, very much by the throat, especially up hills; and by drawing in this manner, a sense of choking being produced, it must, in course, have caused the animal to give back, and acquire the carter's appellation of 'a tickle-drawer,' or restive horse. They had very small heads, and remarkably small ears; in fine, they were made completely in the form a road-horse ought to be, except in their feet.

The dray-horse should be made in the following form:—Broad in the breast; thick in the shoulders, not cast into his back (if he be what is termed *cat-shouldered*, it is a recommendation); the blade-bones nearly as high as the chine, and of great substance, so that the collar lie firmly against them, and the more upright the better; his neck rather short: the head, if small, with a lively

eye, denotes a brisk spirit and impatience; but carters consider hastiness in temp^r as a fault; therefore, a rather large head, with a bright eye, and a low fore-hand, seems the most desirable, as horses of this make have been found to be more steady drawers: back broad, and somewhat short; the loin broad, and rather high; which indicate great strength: quarters cloven, and broad; hucks lying within the ribs, and ribbed very near the huck; ribs round and deep, forming a large heavy carcase; the thigh very thick, so as to be of equal substance with the hucks; arms, or second thigh, very strong; the legs short, with round hoofs, and wide heels; a good tough hoof, and if no white on the legs the better, as white legs are more apt to swell and grease;—white hoofs are tender, break, not holding the nails of the shoes so well as black; and good hoofs are essential in dray-horses, as in drawing on the stones they are very apt to cast their shoes. There is one thing very objectionable in any horse, being large or prominent in the pole, viz. the back of the ears; it is unsightly in all horses, and is apt to produce, in those that draw heavy weights, the pole-evil, which has been the destruction of many a good dray-horse, as it is difficult of cure in hard-working horses.

Another material consideration in regard to the dray-horse, is his movement: he has a slow, heavy walk, which wants mending, to give him a better step. It is the opinion of many farmers, that the fault rests with the ploughman, in suffering the horse to go slowly; but the master is more frequently to blame in the choice of his horses. The improvement ought to be made by the breeders. I am persuaded there is scarcely a man who goes to the plough that would not rather follow lively, smart walking horses, than slow-paced ones: I can speak for myself; during the time I ploughed at my

father's, it was much greater satisfaction to me to follow a pair of our mares, that had a very quick step, than to plough after four oxen and a horse; for the quick movement of the team makes the plough slip more readily, and the work consequently easier. As to the idea that some men, or even farmers, entertain respecting whipping horses, it arises from a want of practice in the process themselves, as there is a natural step which the horse ought to have: by whipping, he may be made to plough more land in one hour, or for one day, but not for the year round; a horse cannot work for any length of time at his full extremity. Horses, either paired or single, should preserve a regular step, the same as a pair of horses in a curricie. The gentlemen's present fashion, of matching the horses in their carriages for step, in preference to colour, is very well worth the farmer's, or even the brewer's, notice: for a farmer may as well endeavour to persuade me that he will, by training, bring the horse he rides to gallop as fast as Eclipse, as that he will make a horse of a slow pace and bad step have a better. Nature has so nearly perfected the horse for his destination, that, though art may accomplish some small amendment, it will not effect a total change: I shall, therefore, merely recommend an improvement in this breed. In my different surveys, particularly during my excursion in Bucks, where many of these large dray-horses are used by the farmers, and four, or sometimes six, are attached to a plough, at a quarter of a mile distance I could scarcely tell whether they were going or standing still: from their pace, they cannot plough more than half an acre or at most three roods in seven hours. Ploughing an acre of land with a nine-inch furrow, would be eleven miles and a half to walk, allowing five yards at every end in turning, which is not quite one mile and a half an hour, for the seven hours; therefore,

if they plough only three roods, that would be at the rate of but about a mile and a quarter in the hour. Now this slow pace renders these horses less valuable; as, with quicker motion, even when they come into the streets of London, they would necessarily dispatch business more expeditiously. As to forcing them to mend their pace, that, in the present breed, would cause them to be poor; and these large horses, if not kept in high condition, seem as if they would drop limb from limb. Therefore, if the step of the mares of this breed were more regarded, and a very good dray-mare were put to a full-blood horse, such as Highflyer, Phenomenon, Sir Peter, or any stallion of their large size and action, and the offspring, if a filly, be covered by a dray stallion; and if that produce a colt, he be kept for a stallion, for the purpose of getting these dray-horses; I have no doubt great advantage would be obtained. I do not think if the foal come a colt from the cross of the race-horse and the dray-mare, that he would be a proper stallion to get dray-horses;—he might be a good horse for a stallion for farmers' use, or even to produce coach-horses, as the cross of the blood-horse doubtless would reduce their substance;—but it is reasonable to suppose that there would be more action, better wind, with less hair on the leg: and the form of a properly-made race-horse' in the head and neck, is precisely suited to a horse that draws in a collar. I am the more bold in giving this opinion, as I have seen the experiment tried.—My father, who was very famous for the breed of dray-horses, had a favourite mare that did not stand her stinting for three years; being persuaded to put her to a blood-horse, she brought a bay mare foal, of superior action and at least equal power to any mare we possessed: she had very little hair on her legs. He put this mare to a very heavy dray-stallion; the

offspring came a mare foal, and proved the best mare I ever saw: she was just what dray-mares and horses ought to be, her action and power being superior to any mare of the true breed, and going as light as a hunter. Then she was put to a dray-stallion, and bred a colt foal, which was saved for a stallion, and was probably one of the best horses of the kind ever exhibited: he was seventeen hands and a half high, well furnished, and went as lightly on the ground as a nag. The man who bought him a foal of my father, more than forty years ago, was bid one hundred and fifty guineas for him at two years old: but he had the misfortune to lose him, which was also a great loss to the community, as even the tilling an acre of land at the same expense as three roods tends to public good. Thus, from this experiment, it is plain to me, if the dray-mare were put to a large, capital race-horse, and the offspring, if a mare, put to a dray-stallion, that the latter produce, if it be a colt, might be proper to put to dray-mares, as the cross would have lost the superfluous hair on the legs, and have gained more action, resolution, and wind. If a cross of the race-horse were thus thrown into the dray breed, it is a matter of doubt with me whether another cross would be wanted for some years, except there should be a likelihood of further improvement, which might be tried in the sixth or eighth cross. I would have the reader understand, in this cross, I expressly mean that the best race-horse of the day should be used as the covering stallion: Eclipse, and the other horses I have mentioned, were not small as to substance when fat; and as action is wanted to be thrown into the dray-horse, the race-horse's perfections cannot be too great: as to a bad blood-horse, he is the worst horse existing;—I disregard blood in animals, if they be not altogether right in themselves. As a substantiation of my remark, that the

racers when fat is a horse of substance, before I took Phenomenon abroad I had a collar made for him at Liverpool, and it was four inches larger than the heaviest dray-horse in that town required.

I have in this work recommended many crosses, but I do not think any cross would be of greater public advantage than the one above noticed. I can but remark an expression that dropped from Mr. Bakewell one day during the time I was at Dishley:—several cocks and hens came near to the place where we were looking at some sheep, when observing them to be of the true game breed, and supposing Mr. Bakewell not to be a cock-fighter, I asked him if he kept game cocks; to which he replied, he should be sorry to breed any but blood animals. This agreed much with my own opinion; but I could not perceive how far he could apply the observation to his breed of horses, except to the cross he took from the Flanders mares, which did not improve his horses, as, though very large, they were of a very unuseful make—weak in the legs, flat sided, long in the neck, with raw hucks, bad in their arms, and remarkably thin in the thigh. Nor do I think Mr. Bakewell bred his horses of the most useful kind *in toto*; his views seemed chiefly to consist in breeding all animals to be fat for show; and to complete that design, he produced them with small bones, but of a tame, lazy disposition. Though small bones, with much flesh, could they have been obtained, would be right in all animals destined for man's subsistence, they would be materially wrong in horses; for much sleep is naturally required by fattening animals, which must necessarily lessen a horse's utility and value:—he ought to be of an industrious turn, readily to bear his part in drawing, and other performances, without compulsion.

I cannot refrain from quoting the following anecdote.

—When Mr. Bakewell had the honour to shew one of his horses to the king, his Majesty quickly observed, “ Ah! he is, indeed, a good horse, if he were to eat, as he is very fat, but I do not think him fit for any other use.” This observation strikes me as being perfectly reasonable, with the exception that a horse can scarcely be too heavy for the particular use of drawing heavy weights in the streets in London, as it gives him one weight to oppose against another; for let a horse be ever so good in nature, and his method of drawing quite correct, he certainly cannot overcome so much weight with a small, poor carcase, as a large horse can with a fat one: and the many impediments and obstructions that these horses meet with in the streets compel them to move very slowly; for although, in the early period of their time, while in the hands of the farmer, they performed only half the work of a horse, they now do as much labour as would be accomplished by two small, poor horses; therefore, notwithstanding his first cost may be double that of the small horse, and supposing he consume double the food (which, by the by, he certainly does not, as a poor animal will eat more in comparison than a fat one), he is still cheaper, as only the same number of men is employed with a double load as would be with the half. Thus, the inconvenience attending the slow movement of those horses is not so much felt in London as with the farmer; but greater activity could be no worse even in the streets, as at times the drays and coal waggons go many miles into the country, when a quicker movement and better step would expedite the business.

The impropriety of Mr. Bakewell's plan of breeding fat horses, which was so readily seen by the king, is very evident, as it is not possible that a horse overloaded with fat, like Mr. Bakewell's sheep, can be really

serviceable, when he has almost work enough to carry his own fat, which is clearly shewn in a fat pig. The prodigious fatness of some horses must prevent them drawing their breath with proper ease and comfort; therefore they should be bred very differently from animals intended for the shambles. This idea wants no trial to substantiate it; for the reader may observe in his own species, there are men of the greatest strength and activity, with the best constitutions, not the least inclined to be fat: having a proper proportion of flesh and muscle to form the frame, they are much more able to endure labour or encounter hardships than those unwieldy bodies blown up with fat; nor are men of gross habit so healthy or long-lived. It therefore appears evident, that the cross I propose with the race-horse, he being by nature intended more for action than strength, and not so liable to be over-grown with fat, would be the means of producing a breed similar to those men who are the best proportioned for all laborious exertion.

SECTION IX.

Waggon-horse, to travel Stages.

THIS horse is not required to be so heavy as that for the dray; though most of the observations made in the last section, in regard to shape, &c. are equally applicable; but, as these horses require age before they are ready for the use of the waggoner, the largest of them will be found a size too small for the dray, though frequently of the same breed. The action of a waggon-horse ought to be better than that of the dray-horse, but this is seldom the case: it certainly would be of great utility to the public if those waggon-horses, by an improvement in the breed, were produced to travel half a mile in the

hour quicker. The following is the most proper shape :—moderate-sized head ; short neck ; thick shoulders, strong and upright ; short in the back ; deep, round body ; strong and broad in the loin, and if rather higher in that part no worse ; ribs very near the huek ; quarter very thick ; well cloven on the hind quarter ; legs very short ; a thick, strong arm ; hoof tough and round ; and open at the heels.—No white on their legs.

SECTION X.

Suffolk-punch.—*Shape ; some probable reasons why said to plough more land in a given time than many other horses of equal weight.*

THIS horse is highly esteemed by many persons for all tillage purposes, and sold to farmers at greater prices than most other horses, according to figure, size, and action, as he has nothing of the gentleman's horse about him. His height is commonly from fifteen to fifteen and a half hands ; but probably his merit lies more in constitutional hardiness than true shape, being, in a general way, a very plain horse. These horses are more particularly confined to one colour than most other breeds, which is, yellowish or sorrel, with a *rack* or blaze on the face. Of the Suffolk-punch the head is large ; the ears are rather plain, and stand wide ; the muzzle is coarse ; fore-end low ; back long, and tolerably straight ; the sides are flat ; shoulders made to fit the collar, but, by being eat-shouldered, standing forward, and thick at the top ; (the breasts of some of this breed rather narrow) ; the hind quarters pretty large and strong, with a good hind thigh, and the arms in very fair proportion to the rest of the limbs ; the legs round, and short in the pasterns ; deep bellied, and full in the flank—which I

think not the best of form, although some persons recommend a great belly : the Yorkshireman says, " A horse with a wheme, and a mare with neine ; " but a good carcase consists in the upper parts being broad and strong, for a large belly, with half a cart-load of dirt in it, cannot add either to strength or action ; therefore, when the weight of a horse is comprised in real flesh and muscle, and large bones, it must be more likely to facilitate work : and the loin of every animal is one of the principal parts for strength ; especially in any horse for the team, as great pressure lies on that part, by either the back-band or the cart-saddle, in extremity of drawing. It has been asserted, that the farmers in Suffolk and Norfolk plough more land in one day than is performed by any other set of farmers in the island : but that general assertion has been confuted ; for by an accurate examination into the different reports taken of counties, it appears there are as many horses kept by the farmers in Norfolk to do the work of a farm during the year as in some other counties. There are some, noted as being the most capital farmers, who till only fifteen acres with one horse in a whole year ; and the greatest number I can find is but twenty-seven acres and a half : now, there are men, even in the county of Dorset, who till thirty and upwards, keeping their farms constantly in a clean state ; and it was my own practice, when I lived at Asgarby, to till thirty-two acres, with each horse, yearly, at the same time leading dung, having most of the corn to carry from twelve to sixteen miles, coals to fetch the same distance, &c. In Ireland, as agriculture is there managed, a horse would till upwards of forty, after a regular plan is laid. Whipping of horses, so much extolled, answers no profitable end : I know it to be a wrong proceeding : a horse, in all farming business, must have a natural step ; and unless you keep continu-

ally whipping he will readily drop into it. There was a decisive proof as to the respective merits of plough horses, at Woburn ploughing match, where his grace had two of his own ploughs on the ground, with a pair of horses in each of them, one a pair of Suffolk-punches, the other a pair of the black eart kind, perhaps from either Lincoln, Leicester, or Derby, as there is very little difference in the breed in these and some other counties: in this contest, the two blacks beat all the other horses in the field many minutes in their performance, even the Suffolk-punches, doing their work with the utmost composure, never wanting the whip, or even a string shaking, but merely taking their natural step, and stepping together—which is one of the most necessary qualifications the farmer has to look for in his choice of horses. As to making horses go either faster or slower, it is very hard to effect; however, without doubt the whole of the four horses had been selected in preference, therefore, as the Suffolk-punches had the same chance of being the best of their kind as the black horses had of theirs, I do not see the least reason to think the former the swiftest plough-horses. I have seen these horses at their work in many parts of the united kingdom, and especially in Norfolk and Suffolk, where I thought, from the very broad furrow they carry, that they might doubtless plough more land; particularly as much of the soil is sandy and light, and the ploughs are of a very superior make in the breast to many others for ploughing level light land, doing the work with greater facility, for, carrying little pressure, they east the earth from them very quickly. But I am convinced horses derive no advantage from wheels, as all friction takes power; and it is a doubt with me if the wheels alone do not take one fourth as much draught as the plough, as

it must be observed that they are constantly either in dust or mud: we may draw a comparison from a single-horse chaise, or curricie;—after being set in motion on hard ground, it forces the horse forwards; but the instant it reaches dust or mud, it lays hold of the ground, and draws hard. I saw a plough, made in London, that by the power of a fly-wheel, which one man turned, while another held the plough, easily ran forwards: she was taken into a garden, and in very fine mould she ploughed a furrow by the assistance of the two men; but the instant she came to stiff ground she wanted the usual power of horses: therefore, the less friction the better. Many Norfolk farmers have gone into other counties, and taken their ploughs and ploughmen with them; but they all, in time, decline the practice. Wheels to a plough certainly render her steady; and on hard ground she is to be made to plough where a plough without wheels will not touch the land, always going in a wriggling manner, nipping and twisting, so as to jump out at the least obstruction: and wheels are also an easement to the ploughman, but none to the horses. I must confess I was much surprised, on calculating the number of horses employed in Norfolk, and in some other counties, to find that there was not more land ploughed by the Norfolk farmer with a given number of horses; as I had frequently observed the ploughman, in Norfolk, turn a furrow much broader than is usual in most other counties—which, by the by, is a very bad practice, except in the dibbling process, in which probably it may be the best. I was in company with a Norfolk farmer the other day, when he was extolling a perhaps new method they have got, in dibbled crops;—after the holes are made, and the grain put in, they sow hand manure, which by the bush-harrow is drawn into the

holes, upon the wheat: this practice must be almost certain to bring the mildew on the crop; at all events to produce straw, but not grain.

In riding through the counties where these horses are in use, I have noticed their pace at plough; but I did not perceive any difference between them and the horses in Nottinghamshire, Yorkshire, &c. where they plough with pairs of horses on all kinds of land. I have also very particularly noticed the step of these horses in the streets of London, where it may be seen they are in a team by themselves, or mixed with others: they do not appear to have any check in their step when they follow other teams, nor do they, when they are the foremost team, seem to leave other teams behind. There is some small advantage to be obtained in training horses, by forcing them when lightly loaded, either in riding or drawing; but when they have as much as they can carry or draw, they must fall into their natural step: and if these horses do walk faster at the plough than some others that are better formed, it must arise from the lightness of the soil and the ploughman forcing them. It is possible for a pair of horses, with a good step, and in cool weather, and broken light soil, to plough two English acres in eight hours; but this for only a short time. When I lived in Ireland, my ploughman, in planting his own potatoes, having the planters to pay for their time, of course used the utmost expedition: the time was regularly kept to a minute, and the land being ploughed in a nine-inch furrow, the performance was found to be, one acre and twenty-one perches, Irish measure, in six hours and ten minutes, which is at the rate, English land measure, of two English acres and nearly two roods in eight hours: the horses must, therefore, have walked, during that time, at nearly the rate of three miles an hour, as it

would have been upwards of twenty-three miles in eight hours. However, I did not thank the man for his dexterity, as no horses, with whatever keep, could maintain such hard labour: but he was always liable to force his horses faster than I wished, even in ploughing for me. The two mares used were English, of the true dray kind; but so well chosen in their step, that they day by day, and every day, would plough without whip or forcing, keeping a regular walk, and commonly ploughed one fourth more land than any other pair of horses in the same field in an equal time. I have mentioned this circumstance to prove the necessity of choosing horses with a good regular step.

When in England, at my brother's, he offered to sell me a mare, because, he said, she was so hot and passionate while drawing in pairs in the plough that his men could not do any thing with her. Observing that his men had coupled her with a slow, gentle mare, and judging that to be the cause of her hastiness, I bought her; thinking, if I could meet with another mare or horse of equal strength, action, and spirit, and that stepped as quick as she did, it would remedy the grievance. I was right in my opinion; for meeting with another mare of the same passionate turn, they were put side by side, and she became the most temperate of the two: but neither of them would suffer a rein to be shook without jumping forwards; and as our land was rocky, if the plough caught at a rock, it was sure to be broken, which was too often the case, as they have broken two ploughs in one day. However, farmers who wish their men to whip the horses are wrong; horses should be so chosen as not to want forcing. It is highly essential that horses put together should have the same step, the same spirit, and be equal in strength, &c. which must necessarily render the process easier; for if

one step farther at one time than the other, it causes them to go in a twisting, uneven manner, so that even the plough is not drawn in a direct line.

I have sometimes thought, the Norfolk farms being large, that the mode there adopted, of employing horse-keepers, and having two sets of horses, one for the fore part of the day, the other for the latter, with but one set of men to work both, might be economical. But I have tried this method, and, in short winter's days, it seemed all beginning and ending: I could not even perceive that work got faster forward with two sets of horses than with one, while the expense was much greater; and, since the report informs us of the fact, it appears that my experience proved right. The consideration is, not what a pair of horses will plough in one day, or one hour; but, how many horses and men will do the work of a farm, keeping the land free from weeds, and producing good crops, during a whole year.

From all the information I have gathered respecting the Suffolk-punch, I cannot very highly recommend him. His appearance is only that of a middling kind of horse, and his performance the same; being only fit for drudgery, not good enough for gentlemen's carriages, or any employ in which good looks and action are required. The breed of these horses might, however, be greatly improved by a good blood stallion, which would be the means of propagating a much more valuable horse than the present, as it would add to his figure, while his size would not be diminished, for the best kind of blood-stallions are horses of more substance and higher than many of the Suffolk-punches. I have seen a number of stallions of this breed at Smithfield, and at Lord Somerville's shows, but I never met with a good one. Some of these stallions have been introduced in Ireland. There was a sameness in those I saw; when I had seen

one, I had seen them all; and I suppose they were the best of the species. When I was in Dorset, Mr. Bridge, who ploughs with pairs, had bought a mare at a very high price; but he did not like her at all; he said she neither stepped better than his own, nor did she thrive so well.

There are many counties in England where it is in vain to attempt to raise horses of great size: fifteen hands is a very good height for a farmer's plough-horse, if his action be good, and his limbs properly proportioned; but it certainly is worth the breeder's while to endeavour to increase the value, as a twenty-pounds horse will require as much food to raise him as a horse worth three times the sum.

SECTION XI.

Poney, or little Horse.—Wildmoor-fen Poney.

THIS poney has been raised in the Lincolnshire fens, near Boston, for centuries past, with little alteration in the breed; but as those fens are now inclosing, the species will soon be extinct, as the land is about to be appropriated to a much better use, selling at from 50*l.* to 60*l.* an acre: therefore the only reason I have for describing this horse is, to shew those persons who consider the inclosure of commons injurious, what nuisances waste lands are, and the impropriety of keeping such a mean, bad horse, on land capable of producing horses that, at the age of two years, are worth from 30*l.* to 40*l.* each, with crops of oats of from ten to fifteen quarters an acre, and all other crops in proportion. The poneys of this breed are of all colours; size from twelve to thirteen hands high; cross made, with large heads, and ewe-necked; low fore-ends; flat sides; long in the

back; short in their hind quarters; cat-shouldered, standing forwards; tails standing low; with good flat legs, and short fetlocks, or pasterns; very often treading low, by their feet growing long in the toe from running on wet ground, and in water; their hoof, by nature, round, but many of them oyster-footed, viz. flat, and the frog growing higher than the heels: in performance, some of them are very good on soft and level ground, but on hard, stony land, or up and down hills, very deficient:—this remark is deserving the notice of all buyers of horses, and even breeders. These poneys were mostly used as shepherd's horses, by jobbers, pedlers, potters, &c.; the prices of them, for many years, at three or four years old, up to all ages, were from fifty shillings to five pounds or guineas: I suppose they now sell for from 7*l.* to 10*l.* They were what may fairly be termed wild; and a small stallion of the same kind being put among a man's lot, they bred at all ages. But although these poneys were kept seemingly for nothing, the breeders were never known to get riches by raising them: indeed, commons are, in a general way, the cause of introducing kinds of all sorts of stock, geese and ducks excepted, that are a discredit to such a kingdom as England. From the uncertainty of produce on those spacious commons, supposed to comprise between twenty and thirty thousand acres of land, they have been the ruin of many an honest, industrious man, while they are the idle support of a den of robbers and thieves. If it came a fruitful, good summer, and open winter, these poneys would be as fat as hogs; but if a dry summer, and hard winter, with much frost, and for a continuance, they would die by scores, or I might say hundreds, and there is no prevention or cure. I have lost horses pastured in those fens, which have had more than a peck of sand in their maw, or first stomach, and

an immense number of bots and red worms in their intestines. The reason I have for saying there is no cure, is, as long as the horse can obtain grass, the bots and worms are not found to so materially affect him; but the instant he is taken to dry food, these vermin, being deprived of the juices of the grass, on which they live, fly to the animal, and eat all the coat of the stomach away. The horse's eyes give the first indication, by turning dim; soon afterwards his head begins to swell; and then the under part of his belly, what is termed the feltric: all which disorders are occasioned by the bots and worms feeding on the vitals of the horse, the very main-spring of his life. Farriers pretend to give medicine to obviate the danger, as inconsistent and foreign to the complaint as possible: the only means to prevent the vermin eating the horse to death, is to supply them with food. When I lived at Asgarby, and stocked this fen with horses, during the summer only, they being chiefly of the large dray kind, with some others of an improved valuable breed, after taking them from the fen I put them into stables, sheds, fold-yards, &c. and gave them chaff chopped from oats in the straw; when I saw them doing ill, I increased their quantity of corn, supposing that would at least preserve their lives, but, to my great astonishment, this food made them die more quickly.

The method of stocking those fens with horses was, to put them on in the middle of May, sooner or later, accordingly as the season was for dry, warm weather; bringing them up about October, as the season might be for cold or wet, and then putting them into fold-yards, &c. as above mentioned. When a horse of mine that had run on those commons died, being desirous to know the cause of his death, I opened him, which is my constant practice, and upwards of a peck of sand was found in

his great stomach or bag. In mild winters, horses which have run during the summer in the fens frequently keep their flesh, they even continue fat; but were those horses brought up and corn fed, they would very probably die: for as all horses fed on low, wet lands, get the bots, grubs, and worms, in them, more or less, which are natives of such grounds, so, while the horses keep eating green food, those vermin do them little mischief, as they prefer that kind of nutriment to what they can obtain by preying on the animal. But when a horse quits grass, and is taken to dry food, the bots, &c. are compelled to devour his viscera: they gnaw his intestines, consume the chyle, and prevent the regular supply of blood, which assumes much the same appearance as that of rotten sheep, and from the same cause; but the one reptile preys on the liver, the other on the intestines, &c. —the one consumes the very blood itself, while the other feeds on the nutriment of which the blood is composed. Chopped straw is the very worst food that can be given; it is here rank poison: malt mashes are the best; bran mashes the next, but bear no comparison with the former. I never opened a horse that died in this way but I found his bag much eaten, and sometimes nearly through, and the bots sticking as thickly together on the parts as possible, similar to honey-bees in a comb; and if I took hold of one, it would adhere so firmly, as nearly to break in two before it could be made to quit its hold. Now, this clearly shews the reason why those men who stocked this common were not enriched; for in a bad year they lost the greatest part of their stock (which included their profits for three succeeding years, as they seldom offered their horses for sale until they were three years old), and some, or perhaps nearly all, of the brood-mares: therefore the common was worth nothing in its

former state, for the breeding of horses.—The most effectual means of destroying bots, &c. will be given in the section on “*Disorders.*”

SECTION XII.

Welsh Poney.—Description, and Perfections.

THE Welsh poney is a small horse, of various colours; height from eleven to thirteen hands; short made in the carcase; small head; duck-nosed (that is, having a hollow in the forehead); sharp small ears; rather short in the neck, but strong in the withers, and well risen; round deep carcase; broad breast, and shoulder, for the most part, pretty well thrown into the back; short-jointed legs, flat, and well made; round, tough, good hoofs; wide in the heel, and, when kept in order, short in the toe: altogether the most complete poney in this kingdom, remarkable for the best feet and legs, and no horse equal to go up and down hill. Mr. Culley mentions, in his work on live stock, riding one of these poneys himself, that, after many years, preferred the pavement or stones to soft ground. Now this poney is bred and reared on hard, dry land, and very hilly, scarcely fit for any farming purpose; yet is he a much superior horse to the former, which are raised on land of considerable value: and the qualifications of each are according to the land where they are bred; the best of those from the fens being raised on soft, level ground, while the others prefer hills and dales, and even stones. Although nature cannot be entirely changed, it appears that situation, air, water, &c. have wonderful effect. The Welsh poney is one of the hardiest and best-constituted horses produced, while the other is the worst; for

though nature is not totally eradicated in the Wildmoor-fen poney, its value is much lessened by being bred on land not suited to a horse's temperament. Many well-informed men only allow there to have been originally one breed of horses in this island, namely, the bay coach-horse; Mr. Culley supposes there were two kinds—the race-horse and the black cart-horse: the latter I have always understood originated from Flanders, and the race-horse to be a mixture of the swiftest horses in England with the Arabian horse or Barb. Mr. Culley is of opinion that the poney is a distinct breed: but I have reason to think otherwise; as it is surprising how quickly the size of an animal may be reduced by poor keep and bad usage, or even with good keep in ill-suited situations, for it is certain the dray-horse cannot be reared to perfection in some well-cultivated counties. Of this an example occurred under my own observation.—In my father's breed of horses, which were as large as any in the kingdom, he had one mare that had bred him fourteen colt foals, all by one horse, not one of which, at the age of three years, was under seventeen hands; when she was in the fifteenth foal, by the same horse, he sold her to a small farmer, conditionally to have the foal at half a year old. The farmer took her in the first week in September; and in the September following he brought the mare to deliver the foal, which was after twelve months' absence: her colour was then changed, from a bright jet, to a dingy brown rather than black: and, though not poor in the extreme, she was low in flesh to what she used to be, as, when in our possession, she had never been seen in any other condition than very fat, and in consequence was of a beautiful jet black: in appearance she looked more than five years older than she did when she went away, and much less in size; and the foal was considerably smaller than her foals used to be at the same age.

This foal was immediately put with other foals, and treated in the same manner as the rest of her offspring had been for years past; but it had got a stop in the six months which it never recovered, being at three years old little more than fifteen hands high, and smaller in proportion in all its limbs. I wish particularly to enforce the remark, that in breeding and raising all other animals, as well as horses, the greatest attention should be paid to them in their early stage, as any stoppage at that period is seldom recoverable; how necessary it is so to support the dam, that when she yeans she may have it in her power to afford her young every assistance that nature requires; and that even the largest horses, without due care in breeding, may be brought down to the size of the poney. No doubt many of the various kinds of horses may have originated from the same mare and horse; but the opinions of men differing in regard to breeding and treatment, together with the effects of air and situation, horses very dissimilar in appearance and action have been produced. A curious instance, shewing how a change in colour may be effected, occurred with a mare of my father's; she was of the true black kind, being the very first mare from which he began his capital breed, and brought many foals of the most jet black: this mare one year produced a grey foal; and no other reason could be assigned, but that at the time she was stinted the man who had the care of the stallion rode a white poney, which was let loose in the yard; when, the stallion not being eager in his duty, the man ordered a boy to bring the poney to the mare's head. Another similar instance took place in my father's flock of sheep: he had an utter objection to black sheep; so much so, that he would always look in a ram's mouth, to examine his tongue, as it is the opinion of some breeders, if a white ram's tongue be black, he will be liable sometimes

to get black lambs: it happened that a very favourite ewe produced a black ewe-lamb, and my father permitted her to raise it; when a gimmer she was put to the ram, with fifty-nine others, and among the produce of that number of ewes, that year, were twenty-one black lambs: the black ewe had a white lamb. Strange as these two circumstances may appear, they are facts.

SECTION XIII.

Scotch Poney.—Description and Use.

THIS is a small, but very strong and hardy, animal. The horses of this breed are in height from twelve and a half to fourteen hands; the colour of many of them grey, and some black; their shape coarse:—large heads; short necks; shoulders standing forwards, low before; long in the back, but strong; short in the rump, tails standing low; their legs and feet very good; the bone of the leg rather round, but large; the pastern short: in general, they are slow in their paces; but many of them are what the horse-jockeys call ‘bone-setters,’ trotting hard, for which reason they are made to canter, and will travel many miles in a day with great ease to the rider: they will live on as poor keep as any horse of their size; and are not of any particular aptitude to fatten.

When I was in Scotland, I saw some very beautiful grey horses, in the hands of a farmer and distiller, of about fifteen hands high, and a particularly good form. These horses were a cross from a horse of Mr. Bakewell’s own kind, before he took the cross with the Flanders mares: his horses before he crossed them were rather low and compact, with remarkably small ears, and very smart looks; and these horses had got some of that shape about them, which made them cut a very conspicuous figure in Scotland. From what I observed, I am per-

suaed that a very useful breed of horses might be procured from the Scotch mares, put to a well-formed English stallion of the dray-horse kind, with good action: there is a hardiness in the Scotch mare, which, if size and action were added, would render it valuable.

SECTION XIV.

Shetland Poney.—Description.

THIS poney is very small, not more than about nine or ten hands high; of a brown or bad black colour, with much hair, and long manes and tails. Many of them are of a very handsome make:—small heads, short ears, the neck short, the shoulders thick and rather low before, their backs short and strong, their quarters round, hucks lying round, and they have greater strength in their thighs and arms than most horses, according to their size: their legs are very handsome, with short pasterns, and small round feet; in short, they are admirably suited as saddle-horses for young people: they are also used by some ladies, four of them harnessed in a small carriage, in lawns, parks, &c. They are remarkable for their aptitude to fatten. We had five of them in Ireland, where they lived all the winter in the woods, and were the fattest animals of the kind I ever saw: they were Lady Conyngham's stock; and she had two donkeys with them, but they are much hardier than the ass.

Mr. Bakewell preferred beginning to propagate almost all breeds from small animals of great aptitude; which in those destined for the shambles may sometimes be right, but I think not in horses: all other animals are near the last period of their existence when they become fat, nor is it known whether it be healthy or not even in them. However, I have made one observation in regard to horses, namely, that being fat is very bad for their wind.

My father was a remarkably good keeper, and an easy rider; and many of the horses he kept for any length of time became broken-winded: I believe no man had so many horses in that state for the number he kept. Now, a horse's wind being broken is generally attributed to distress in labour, to mouldy hay, dirt in corn, &c. but that could not be the cause with my father's; for he seldom rode more than five miles an hour, or twenty miles a day, and was sure to feed his horse at the ten-miles' end, never letting any person ride it but himself; and, either at home or abroad, it was allowed the best of hay, corn, and oats: he had a sieve in the binn where his saddle-horse stood, to cleanse the corn from dust: therefore, no other cause can be assigned for the frequency of the disease in his riding-horses than their being burthened with fat like a fat pig.

SECTION XV.

To know the Age of Horses.

THE horse first renews teeth when between two and a half and three years old, at which time he casts two above and two below. At the age of three and a half or four years he sheds four more, two above and two below. When between four and a half and five years old he renews the remaining four, which are called the corner teeth: in a short time a black mark or speck appears in these teeth; if just discernible, he is five years old. At six, a new tusk presents, about which grows some young flesh: at the end it will be white, small, and sharp pointed. At seven, his teeth are perfectly grown, and the mark in his mouth will be distinctly seen. At eight, the mark is barely perceivable, but all his teeth will be full, smooth, and even. At nine, the mark is gone; and

the tusks will appear yellow and round at the top, whereas before they were sharp. The first eight teeth that the horse renews complete their growth in about a fortnight: the last four, or corner teeth, are perhaps a year and a half in attaining their full growth. The first four teeth he renews are called nippers, or gatherers; the next four separators; and the last four are the corner teeth, which contain the black mark. He has four tusks, or tushes (as they are sometimes called), which stand between the fore teeth and the grinders or double teeth, and usually make their appearance when the horse is about three and a half years old, but do not come to their full growth until he has reached the age of six years: about this time he becomes ill-thriven, from the soreness he experiences in changing his teeth, and getting those tusks or tushes. It is an almost general opinion, that a horse at two years old is able to perform as much labour as at three, on the account of changing his teeth. It frequently happens that the flesh of the inside of his mouth, beyond his fore teeth, will be full, and rise above the length of the teeth, which is called the *lampas*, and ought to be cut out, as, being sore, it will hinder him from eating:—the method of performing this operation will be found described in the section on “*Disorders*.”

SECTION XVI.

Names of Horses at the different Periods of their Age.

MALE.—While sucking the mare, he is called a *colt foal*; then a *yearling colt*; next a *two-year-old stoned colt*; afterwards a *three-year-old stoned colt*; and when four years old, a *stoned horse*, *entire horse*, or *stallion*. If castrated, he bears the name of *colt* until four years old, then a *gelding* till six, and after that time a *horse*.

FEMALE.—When sucking she is called a *mare* or *filly* foal; then a *year-old filly*; next a *two-year-old filly*; afterwards a *three-year-old filly*; and at four becomes a *mare*. In Ireland and America they call all foals, while sucking, ‘*colts*.’

SECTION XVII.

Remarks necessary in the choice of Horses, especially for the Road.

TAKE notice for a small space of time before the horse is brought to be shewn that no person is in the stall with him, that you may see him stand without constraint; for if he have any tenderness in his fore feet he will stand with them extended, and keep moving first one foot and then the other. When satisfied in that particular, order him out in the halter; and neither suffer a whip nor any *figging*, which is thrusting ginger into the fundament, as that not only alters the horse in appearance, but spoils his going, making him move wider behind than he ought. Just as he reaches the stable-door, cause the man who leads him to stop between light and dark, that you may examine his eyes; nothing being of greater consequence. Observe if they are full or not; whether his eye be brown, or he have a blue, narrow, dark eye: the most esteemed is neither small nor large, and of a brown hue; yet no kind of eye is thought good unless the chrystaline be perfectly transparent. It is usual with dealers to place the horse with his fore feet on elevated ground, that his shoulders may appear farther in his back, and make him appear higher than he is in reality. When you observe this, cause him to stand on level ground, which will enable you to discover whether his shoulders are upright, or they lie well in his back: for an upright-shouldered horse is almost certain to throw

the saddle forwards, and consequently will be apt to carry the rider as if he were going over the pommel; and should the horse make a stumble, the rider being moved out of his seat, and the weight thrown over the horse's balance, he will be more liable to fall. The horse being put on level ground, take care that the fore legs stand even, otherwise you never can be a proper judge of his shoulders; as the dealer's practice is, to have the near fore leg stand before the other, the shoulder in that position appearing to lie farther in the back. Stand before the horse, and observe his bosom; if it be wide in the extreme, his knees will be the same, which is wrong: be sure he is not narrow-chested, as that shews weakness, and is an almost certain indication of his being chest-foundered.

After you have carefully examined him by the above rules, let the man run him in hand a gentle trot, at the halter's length: then order a saddle and bridle to be put upon him; and if he have any restive tricks, he will stick up his back, look behind him, put his nose towards the stirrup before he is mounted, and when mounted be some time before he blows his nose—as a restive horse never settles in his temper until he blows his nose. Desire the man to let him walk, and then trot;—a horse on trial may be suffered to walk his full pace, but he should at first be allowed only to trot slowly:—see that he pulls fair, neither high nor low: stand behind and before him as he trots, when you may see if he move his legs even, in a direct line one with the other: reject the horse that throws his legs about, and crosses them: then take a side view, observing whether he point his feet properly, bending in the knee without *cambering*, that is, fighting the ground as if he were blind. Afterwards order the man to canter him; if he do that with ease, lightly and coolly, direct the man to trot him his full

speed, and then gallop the same: when he is put out, or rated, in these fast paces, observe that he take up his legs quickly, and dash in his haunches, not bringing his hind parts after as though they did not belong to him. This examination ended, mount him yourself, and, having a snaffle bridle, give him his head; let him walk over ruts and rough road, and if there be a hill, ride him up; if he do that, and walk down with a slack rein pleasantly and safely, you may almost to a certainty pronounce him to be a good travelling hackney.—However, much depends on what the horse is wanted for; as there are many horses that perform well in fast paces, but act very improperly in slow movements.

SECTION XVIII.

Instructions for breeding Horses most proper for Husbandry; their Shape and Action.

THE horse used in husbandry should be larger than, but in other respects nearly like, the road-horse, except in his neck, which ought to be somewhat different. In a horse for the road, it is not possible the fore-end can be too upright, or the shoulders lie too far back; as this makes causes the saddle to rest in so much the more proper manner: but for a horse-of-all-work, riding and drawing—for I would have the reader understand, that the horse I am now describing is intended for the small farmer, who rides his horse one day in the week and draws him five, therefore it is better to fit him for the collar than the saddle—he must be cat-shouldered. It is the opinion of some men, that having a thick and strong shoulder is an indication of being slow in movement; but I think otherwise; I would instance the hare, the rabbit, and the greyhound, the shoulders of which animals are remarkably thick and strong. But as the horse has to carry

weight, if it lie on the part which obstructs his movement, it will, without doubt, be likely to make him stumble, and even to fall; therefore, to horses so formed the crupper must be used: for I see every reason to believe, that a stumbling or slow horse is partly made by carrying his weight forwards, and a safe and swift horse by carrying his weight backwards, especially in the walk and trot;—I do not think so in the gallop. It may be observed that butchers' horses are, in general, faster trotters than other men's, particularly in London; and their practice is, to sit on the loins of the horse, having a sort of pad before them to buckle the tray on for containing the meat: thus those horses carry little or no weight on the part where riders usually sit, the greater portion of their load resting on the loins: again, the boy always rides with spurs, and pricks the horse behind, which I believe to be another advantage: altogether, the butcher's horse is rendered both speedier and safer than the generality of hackneys.

As it is certain, then, that many of the horses for husbandry are required to both ride and draw, and it being impossible for any horse to draw with ease to himself when the collar presses hardest against the lower part of the throat, one of those qualifications, which may be considered the most useful, must have the preference. As a low fore-end does not injure his speed, a horse to draw might be obtained, which, instead of walking two or three miles an hour, may walk from four to five; and instead of trotting eight or ten miles an hour, may trot twelve or fourteen. Possessing that improvement, he will, with the same or more ease to himself, be able to plough an acre of land instead of three roods; for it is very evident that when the plough is drawn quickly through the ground she must clear herself better, and consequently carry less weight than when she

moves slowly and burrows : and the case is the same in a cart or waggon ; if a deep hole, or any obstruction present, the carter generally gives his horses wind, and then causes them to go as quickly over as possible, that the wheels may experience the less resistance. The nimble, quick horse, will likewise do all farming business with more dispatch—a very valuable property in the time of harvest, carting manure into the field, travelling to and from market, &c. : the farmer will certainly find his account in the improved horse, as in most cases the cart or waggon is light one way. Having a horse of this kind, the small farmer need not keep an idle one ; as he would carry his master to market, and do all the farming business during the remainder of the week : and if sold, he would fetch a better price, as he would suit a tradesman, a merchant, or even for the carriage of some gentleman who keeps only two or three horses. It is a very prevalent opinion, that if horses be put to draw, it will make them stumble : I grant it may, in a small measure, cause them to have a shorter step if they are over-weighted and worn down ; but if their natural step be good, they are kept in good condition, and are in full power, they will come to their step when rode, and be no worse for the saddle. I had a proof of this in a mare I bought in Derbyshire, out of the team of a man who worked for hire ; she was, when I purchased her, four years old : she had been drawn very hard from the age of two years, and was in very low condition. I then rode 17st. 10lb ; and she carried me nine years, without once falling, though I rode her over as dangerous roads as any in the kingdom, in Yorkshire, Derbyshire, Lancashire, Westmorland, &c. She cost me 18*l.* ; and I was bid 50*l.* for her many times, and once sold her for 60*l.* but the gentleman, at my own earnest request, let me have her again : this was about the year 1790, therefore at this time she would have been worth much more.

She could carry my weight ten miles an hour with ease : I have ridden her from Lincoln to Doncaster, which is forty-two miles, in five hours. This mare was bred by a publican in Derbyshire, who also kept a team, and worked as a biggler, carting lime, &c. for hire ; out of one of his own mares, of a mean description, got by a blood-horse, the son of a horse bred by the Duke of Devonshire, got by Old Regulus.

The object of pursuit, in all crosses, should be, to select animals the most celebrated for the required perfection ; therefore, in breeding the horse best suited for husbandry, from the present race of mares, as action is the qualification wanted, it is evident that the race-horse, being of the best action, should be used. In crossing, the male animal is of the first consideration ; for it will be seen, from the number of experiments recorded in this work, that the male has the greatest influence in changing the qualities of the offspring ; shewing plainly that, similar to the process of vegetation, the male sows the seed, and the female nourishes the plant. Probably it might be found that one fifth or sixth blood in these horses would effect the desired purpose. The race-horse can bear an excess of heat much better than any other horse, which is a principal reason why the Americans send into this country for so many blood stallions ; while, from its swiftness, it commands more rest hours ; and the experiments I have tried seem to prove that he requires rather less food : at the same time he is not so liable to have swelled legs, or the grease, as it is overheating that occasions that and many other disorders ; for the being reduced in flesh makes the blood turn to water.

These horses are of all colours : at present, the best colours are black and bay : white legs are objectionable in all horses.

To prove the decided influence of the male animal, I will record an experiment tried by an uncle of mine, with two brood-mares, put to different stallions, in the same year; the mares and foals being treated as nearly alike as possible, and both sold at Horncastle fair in August, at the age of five years.—One of these mares was of perfect shape, superior to most others, being able to carry twenty stone (the weight my uncle rode, who was a very great fox-hunter), up to any pack of hounds; he refused 30*l.* for her fifty years ago, which was a price then scarcely known for hunters; but she was generally allowed to be one of the best brood-mares, as a hunter, in the kingdom. She was put to what Mr. Culley calls a Cleveland stallion, which is the animal I have reprobated under the name of the large bay coach-horse: the offspring, which proved a mare foal, and was sold at 13*l.* possessed all the bad qualifications of the horse, as might be inferred from the price—a large-boned, heavy, slow mover, and improper form. The other mare was a Welsh poney, about eleven hands and a half high, with all the good shapes of that breed, hereinbefore described. She was stinted by Merry-bachelor, a horse of wonderful performance, and a good racer.—In one of Mr. Shafto's matches, for a certain number of horses to go twenty miles per hour, and if any horse failed in performing the twenty miles, some other horse of the number, after completing his own distance, was to make up the deficiency, there were two horses accomplished only fifteen miles each: Merry-bachelor had been kept in reserve, and he performed his own twenty miles and another's five, within the hour, twice in that match, which was fifty miles in two hours.—The mare produced a colt, which was sold for twenty-five guineas then, about five-and-thirty years since, as high a price as any hunter sold for in a fair; and it was said to be sold afterwards, as a

hunter, for 300*l.*: the poney cost only five guineas. I was witness to this colt being a horse of most extraordinary performance:—at the age of four years and a half, carrying a cousin of mine, riding about fourteen stone, he went the first day seventy miles; the next day he was out coursing six hours; the following day, fox-hunting with Lord Darlington's hounds, in at the death of two foxes—out nine hours; the two succeeding days out coursing; the last day he returned home, a distance of sixty miles. The size of this colt was about fifteen hands—the height of the sire: he went through all the above exercise with great ease. I, in company, rode a mare, six years old, got by Mr. Turner's Spot, riding about the same weight: she was a mare of great performance; but the colt seemed to do his work with the most ease. It may be proper to observe, the mare mentioned as the hunter, the two years following, was put to Mr. Alenby's Atlas, and bred two colt foals, sold, at five years old, at thirty-five guineas each. These circumstances clearly shew the influence of the male animal, and what a wonderful difference the choice of a good stallion makes to breeders. Now, if this poney had been put to a large dray stallion, with an intention of gaining power in the offspring, the colt would not have been able to accomplish half the duty above recorded:—power, without action and resolute spirit, is nearly useless in all the necessary exertions of a horse, and is therefore merely outside show.

I have endeavoured, by giving instances, of which I know many, to shew the good effects that may arise to almost every kind of horse from having a cross, or what may be termed a dash, of the race-horse; for, while it produces better action, in some cases even power has been gained, as proved by the Welsh poney breeding a horse larger in limbs than the sire. But I would not

have the reader suppose, that I am race-horse mad; I only want as much blood in every kind of horse as will make him fully adequate to the purpose for which he is intended; and the experiments I have mentioned seem to determine it may be accomplished without danger. The method I propose is certainly more expensive; but I apprehend it would be attended with more than commensurate benefit. The best of race-horses cover mares at from ten to as high as twenty or twenty-five guineas; but though the first of the offspring, if mares, may not average more than from forty to fifty guineas, a stallion may be produced worth two hundred. The value of an improved horse is considerably greater in proportion than that of a sheep; but the rage of fashion in sheep is, and has been, carried to a much higher extreme, as, for the use of a single run, from fifty to a hundred, and even three hundred, guineas have been given: supposing one hundred to be given for store stock, as there were never more than a hundred and twenty ewes, the produce at one year old could not average above two hundred and forty pounds, the wool excepted. Of the present breed of coach-horses, with a mixture of blood, I know one farmer who sold ten four-year-olds, at the fair at Horneastle, in August, 1808, at sixty-five guineas each; and at the same fair, in the present year, six were sold at the enormous price of six hundred guineas: thus the experiment might pay well, as there are few gentlemen who do not prefer blood-horses, with strength, in their carriages before all others. It seems capital horses may be quickly raised from very inferior mares, by making use of the best blood stallions. I do not mean, as I before observed, that a breeder should send all his brood-mares to those high-priced horses, but one only, to begin the breed: and it seems that might be necessary twice in twenty years. I would not by any means have the kinds that

are now useful too much mixed, as almost every good breed may suit some particular purpose; but I know none that might not be mended by taking a cross of a blood-horse once in ten years, which would uphold each with an improvement.

There is a particular breed of horses about Holbeach, in the county of Lincoln, and on the borders of Norfolk adjoining, which are famed as trotters; but they are rather suited for pleasure than for the road, as it is a pace not wanted for a horse of common business. They are a sort of trained horses to that pace—a kind of running trot, between a trot and a gallop; so much so, that they can scarcely be forced into the latter pace; unless, indeed, they may be said constantly to gallop. But this breed of horses are seldom good hackneys; they go loose, in a shaking way, in their slow paces; and there are horses with a shorter step that are better for the road. These horses are not known to have any racing blood in them, but appear to be a distinct breed in that remote part of the country. However, by their legs having little or no hair on them, they exhibit signs of blood; and in some trotting matches have shewn bottom, as if they would not readily tire. The country where they are bred is flat, not a hill in it, or scarcely a stone, which makes them venture their feet more freely than they would do on stony roads.

SECTION XIX.

Feeding Horses for Husbandry.

IN this business, chopping of straw, or rather, in my opinion, oats unthrashed, properly managed, will be found a great saving of hay. But the chopping of straw after it is thrashed, and giving it alone, is a waste of both time and money; for straw when chopped short

contains only the same nutriment it possessed before; indeed it affords rather less, the animal not having so much occasion to chew it, which reduces its value, as in feeding all animals the grand desideratum is, to give food in such a way that they may be compelled to use their teeth, properly chewing and masticating the food, being one of the most material considerations relative to the animal's support. The principal use in chopping straw is the saving of hay; it does not save corn, further than that when corn is mingled among it, the animal will receive greater benefit from the mixture: or if the straw be chopped and given alone, it would only be advantageous in making the straw, if scarce, go further: and chopping of hay the same; for, the bad hay being thus mixed with the good, the animal cannot in eating divide it. But I have every reason to believe there is no profit attached to either of these proceedings; as I have found out, by some experiments I have tried, that an animal will eat an additional quantity of heartless food, which does him neither good nor harm: if this be generally true, the chopping of straw to make it go farther, or bad hay, is like washing the blackamoor white—labour in vain.

Hay is considered by the farmer who cannot send his to market as of little value; but as, in most counties, the process of mowing and making costs, on an average, half-a-guinea an acre, if we add the present rent and taxes, which amount, in a general way, to about thirty shillings more, it would be in all about forty shillings a ton. There is not much money gained by the hay farmers in the vicinity of London, where the expense attending every load of hay in bringing to market is about sixteen shillings; this, with the taxes, and rent, which, on account of situation, is very high, will make a ton of hay cost the farmer about 3*l.* 10*s.* But notwithstanding the London stable-keeper gets the hay cheaper

than the farmer can in fact afford it, I have heard a job-man who kept near one hundred horses on his own account, and got a fortune, from being a post-boy, of a hundred thousand pounds, which pronounces him to have been a judge, repeatedly say, that hay was much dearer to him than corn, let the corn be at what price it might; for if a horse were kept much on hay, with little or no corn, he would be in an unfit state for business. I am, therefore, strongly persuaded, that straw chopped and mixed with corn answers nearly the same end as hay, supposing the horse to require rather more corn: and I am an enemy to thrashing the corn out of the straw; for, as the horse must have corn given to him, why not save the thrashing?

SECTION XX.

Feeding Horses in America.

THE Dutchmen have introduced a method of feeding horses in America, which I consider superior to any mode I ever saw practised: I tried it when I resided in that country, and found it both good and cheap. The method pursued is, they chop rye straw about an inch or inch and a half long, and put it into the manger, two or three inches thick; they then sprinkle some water over it, making it all wet alike as nearly as possible, care being taken that there is no superfluous water, as that would destroy the intention of the process: that done, they carefully mix some rye-meal, finely ground, the finer the better, among the chopped straw—a very small quantity of rye-meal will be sufficient for a bushel of the cut straw: (the rye is at a low price in America compared with oats). This causes the horse to use his teeth much, thereby thoroughly masticating the straw, which is all

tinged with the rye-meal; for, being more gluey and tenacious than the meal of any other kind of corn, it will not separate or fall off by the horse moving the food about with his nose, which is one reason why it is preferred: and the straw being so long, is much better than if cut shorter; for if it were not longer than a barley-corn, the horse would swallow much of it without chewing. By chopping in the Dutch method, the labour is also considerably lessened, for in the common mode there are about five strokes for one, consequently there will be nearly four times as much cut in the same space. I was formerly a great advocate for chopping straw very short, for two reasons: the one, supposing the straw to possess more nutriment than it in reality does, and that it would be more fattening when cut short, like grinding of corn; the other, as my practice was to chop oats in the straw, thinking when the oat corn was cut in two pieces, that the horse must receive more or even all of its nutritious qualities. But I was then ignorant of the means by which an animal obtains the greatest benefit from his food. Walking along the streets in Philadelphia, I saw those men putting a quantity of rye straw, chopped in the manner described, to their horses:—at that time I thought it a bad way to chop straw long, as the horses I had fed with straw in that state shuffled it about in the manger, and threw much of it out, wasting some of the corn likewise:—these horses stood in the streets night and day, during the most severe weather, tied to the pole of the waggon, with a trough fixed upon it, so narrow and shallow that I supposed the horses must toss a great deal of it out; but seeing they did not, I stopped to look at them. They were all over dirt, just as they came in from their journey, which I considered negligence; the dirt was frozen to their legs, and icicles hung to their manes, tails, and under their

bellies; I thought no English horse could have supported such treatment: notwithstanding which, many of them were remarkably fat. It was so striking a novelty to me, that I began to remonstrate with the men on this treatment of their horses, knowing the long journeys and bad roads they had to encounter: in reply, the men told me, the dirt kept their horses warm, and that cleaning them would take the hair off, and starve them. As I had not then particularly noticed the food, they told me there was rye-meal mixed, which, when I examined, I found cleaved to the straw like glue, it being so nicely incorporated that every straw had its portion of meal, and thus the horses did not commit any waste. The reasoning of these men struck me very forcibly as being right: nature has given all animals a coat against winter, and taking it from them by any means, although it may be ornamental, must be more or less injurious. This circumstance altogether set me thinking:—in England I had found grinding corn a bad method, how could it be that this rye-meal should act so differently? The reason is this;—the straw being so long and stiff, takes much chewing, and the horse cannot swallow it without keeping it a long time in his mouth. By reflecting on this matter, I was soon convinced that the first and greatest benefit derived from the food is obtained in the mouth; of which I had some idea before I left England.—Being one day in conversation with Mr. Duneomb, then member for York, he told me an anecdote of a young gentleman, who was remarkably thin, so much so that it was thought he was going into a decline: it was a custom with him to eat his meat in a quick, hasty manner; which a friend observing, he advised him to take more time, and chew his meat much: he did so; the result was, he recovered his strength, and became corpulent. Hence it appears that the length of time these horses are compelled to

keep the straw in their mouths, with the rye-meal cleaving to it, gives the glands of the mouth an opportunity to absorb such part of the nutriment as is required by nature; for it is very plain that the glands being properly supplied is the first essential for the support of the stomach. The glands being a soft spongy kind of body, absorb such particles as are, in all probability, the richest part of the food, which, when separated, returns as saliva or spittle, and passing through the maxillary glands, or those of the jaws, by the proper outlets, flows into the mouth, serving to moisten both it and the gullet, assists in chewing the food, keeps continually feeding the stomach between meal and meal, and promotes digestion, by the fermentation caused in the stomach. These seem all regular processes designed by nature to assist each other in the support of life; and therefore, if the food be swallowed without sufficient mastication, it does not conduce to the greater end for which it is intended. It appears that life may be nearly sustained by the stomach only; but there is a very striking instance shewing that the stomach and the whole frame may be supported by the glands:—A woman was lost in the woods of America, where she remained upwards of thirty days, at a season of the year when there were no fruits, with no other sustenance than the extremities of the branches of trees, which she chewed, and the juice of them, with water to drink, supported her, so that she was able to travel many miles during that time. Thus it seems an excellent contrivance to cut straw and mix meal with it in the way those Dutchmen have adopted. When I ground my corn (indeed, so prejudiced was I in favour of grinding, that I have even submitted the straw to that process), and found my horses succeed very ill upon it, I gave it to them with chopped straw, cut very fine, scarcely the length of a barley-corn, on which account they swallowed much of it without chew-

ing; but the whole process differed, as my oats were broken, and consequently the horses could readily divide the husks from the straw. In the Dutch method, if oat-meal were used, it must be made into flour, and the straw chopped long, and wetted, on which, as before observed, the efficacy greatly depends: but even this method the proprietors of stage-coach horses in America, say, will not do for their cattle, as during great exertion, such food passes through too quickly; nor will the post-horses work on Indian corn. I knew the servant of a miller to give wheat flour alone to a team of four horses, by which he killed three of them; therefore I cannot tell how far any dry meal alone would answer: however, in this case there is not the least doubt, that if the meal had been given with straw cut long, it would have laid lighter in the stomach; for it was formed in so hard lumps, that when the horses were opened, it could scarcely be broken in pieces with hammers. This result was probably occasioned by want of chewing, and having no saliva to moisten the stomach: therefore, from all circumstances, it plainly appears very necessary that every thing should be done to oblige the animal, by a proper use of his teeth, thoroughly to masticate his food, of whatever description.

SECTION XXI.

Feeding Soiling Horses during the Summer.

I HAVE repeatedly endeavoured to prove the advantage resulting from the use of chopped straw; and in no case probably is it more necessary than when feeding with tares, which should be mixed in an equal proportion with clean, sweet, wheat straw: but the straw should not be cut shorter than an inch and half, or even two inches would not be too long; indeed, in chopping

straw, there is no further use in the process than compelling the animal to eat it, the cutting does not at all add to its nutritious quality, but rather the reverse. It seems that all green food, when given alone, is too laxative for a horse that has to undergo any exertion; such food, in hot weather, passing too quickly through the horse: and this crudity is rather erroneously understood; it is termed quick digestion, which is properly the dissolution of the food, so minutely as to enable it to enter the absorbent vessels, and thereby to become assimilated with the mass of blood. The wheat straw, mixed with succulent food, seems like the crust to a fruit pie: it must imbibe the redundant juices, attenuate the viscosity of the humours in the body, promote the circulation and discharge of noxious and excrementitious matter, and afford some wholesome nourishment to the horse.

A horse will eat almost any kind of grass when mown and laid before him, either in the stable or fold; but I have observed the latter to be preferable, as in all cases he will eat coarser or worse food in the open air, or even such as he will scarcely touch in the stable: but it is better put into a crib, not in a rack; and some sorts of food animals will eat with greater satisfaction on the ground. The experiment of my cows eating turnips on the ground, which they would not touch in the house, proves this fact; though no other apparent benefit was derived from the consumption, than converting the turnips into dung. It therefore seems to me that some food given to animals may be little better than useless; such as chopping bad hay with good, when the former, having by some means lost its nutritious quality, is of no service to the animal. I tried an experiment by chopping up the bands with which the trusses are secured in the London markets, always composed of decayed hay that

has lost great part of its nutritious property, by being exposed to weather or at the bottom of the stack; and I found a very great difference between it and the best hay, when mixed either with grains, or lintseed cake made into liquor, and wheat bran added to it: the latter proved very good food, equal to distiller's grains, but more expensive. These experiments prove, that what appears to the eye bad food, is equally so however used. It seems, indeed, certain, that where animals are gorged with dirty, bad food, it must be injurious to them; however, it is very plain that such food alone will not support nature: and its being unhealthy is perhaps proved by the circumstance that animals fed on dirty, weak, bad food, such as the hay from water meadows, or hay made from other weak, poor grasses, become lousy, and animals are never pestered with lice but when low in flesh, which must endanger the constitution. Thus, though the animal may be made, through want, or by some art or device, to eat such food, it appears to me a loss of time, and does the animal irrecoverable injury: for it may be seen, that animals which have been stinted as store stock, and especially for any length of time, when they come to high keep are longer in fattening than such stock as have been kept in a thriving way: some of them, indeed, can never be made fat, nor do they increase to the size nature intended: it even brings them into so low a state that many die. A striking instance of this is shewn in the great loss Mr. Whitworth sustained by starving his young sheep during the summer. There are many things which horses will eat when mown, that sheep, cattle, and even the horses themselves, have refused in the pasture, such as bents, thistles, &c. and will even thrive on them during the winter, when they have been mown and harvested at a proper time, which is while they are in full-blow or on

the decline. When the fens near Boston were open, in good fruitful summers much of this fodder was collected, stacked up, and the horses suffered to run to it, and they were found to do well: they will also eat the grass that grows under trees, and many kinds of weeds. Some persons tether horses on those places, which is very improper: mowing is much better, for two reasons; one is, horses without being compelled will, when the grass is mown and withered a little, eat it, proving that it is more agreeable to their palate; the other reason is, that by mowing grass and weeds under trees, the grass gets sweeter, and in time the stock will eat some of it unmown, but pigs are the only animals that take it by choice. The mowing of weeds, when they bleed, weakens the roots, which will, at length, eradicate many kinds; but the younger nettles are cut, and the oftener, the better: thistles, on the contrary, if mown when nearly ripe, are generally destroyed, as may be seen in meadows that are mowed every year, which seldom have many of the small long thistle in them. And when horses are tethered under trees, and on rich spots, their dung and urine are deposited in an improper way, where they are of real injury; but when the food is mown and carried into the fold-yard, it adds to the dung-hill, if the animal receive but little benefit from it; for in all cases where the animal refuses any plant, put it into what state you may, he will retain nearly the same dislike to it, nor will it prove nutritious. Whatever the animal likes the best, in almost every instance does him the most service. I therefore conclude, that in mowing any kind of green food for the soiling of horses, the day before it is given is most proper; which I have lately practised, and found my account in so doing: but it is a very bad way to eat it as soon as mown, or even the next day if left in the cart or on a heap, as the lower part of almost every crop has a fusty, disagreeable

smell; tares in particular are generally putrid, and when they lie together readily heat, and communicate a nauseous smell to the whole.

I have been myself highly disappointed in the common method of keeping horses. The first year I lived at Slane I kept all my plough-horses in the stable and fold during the summer:—at the latter end of April I began to give them grass, from water meadows; the middle of May, tares; when I observed them to rub much, looking scurfy and their coats dull. I then put them into the fold-yard at nights, when I thought they did rather better, though not nearly so well as the horses I rode, which were turned to grass in pastures at night, eating hay in the day-time, with about the same quantity of corn. Seeing this, the next year, my pastures being fresher, on account of my turnip crop keeping so great a number of sheep, and all the pasture sheep being in high condition, I put two or three horses into each pasture, according to size and the quantity of grass proper for the keep of horses (this as early as the last week in April, and by the first week in May all were out), giving them some water, grass, and hay, in the stable, with the same quantity of chopped straw; (I wish it to be understood, that when I mention chopped straw, I generally mean straw *unthrashed*): thus they succeeded much better. At the latter end of May I gave them tares; as I had found tares more serviceable to horses when going out of blossom, and some of them in pod, or even when they are all in pod: I believe them to be stronger food when they begin to decline. I then gave them clover, pretty full grown. After this treatment there was no rubbing, and their coats looked finer and more glossy; the fact was, they had not the scurvy. They were turned out at nights for seven or eight weeks, and then taken up for the winter; as I much disapprove of keeping horses, intended to work hard during the winter,

out later than the last week in July, or the first week in August; grass after that time becomes of a soft nature, which does not suit horses, making them sweat in a dirty manner; and when any horse appears in that state he is out of condition—generally arising from improper management. By this mode of proceeding I found myself benefited in various ways. The horses thrive better by eating the young grass, which when it first springs up is more fattening, and, acting as a sort of physic, cleans, scours, and cools their intestines: and as almost all horses have bots in them, less or more, when they come to eat the young grass the bots leave preying on the chyle in the stomach, and get among the grass in the bag, being frequently voided with the dung; and it would appear keep gnawing the animal in their passage, as they are frequently to be seen hanging at the horse's fundament. But although these reptiles do partake of the chyle in the stomach, and feed on the intestines in their passage through them, they may be intended by our wise and great Creator to conduce, in some way, to the health of the animal: thus, in all the experience I have had during life, I have constantly found it advantageous to study Nature, to give her every assistance, but never to contradict her. The next thing in which I found myself benefited was, a very great saving in green food for the two months; and though, in those pastures where the horses were put, I had a larger number of sheep and cattle than the summer before, still the pastures were better: but the reason is obvious;—there are plants of various kinds in all pastures suited, to the palates of different animals, as sheep, cattle horses, even swine, and probably geese; while there are soils varying in quality to produce those plants in almost every acre of ground: thus, by the stock being composed of different animals, they keep the pastures more even;

for it may be seen that where there is but one kind of stock, there is always much waste of grass in some parts, and in others it is eaten up very bare. Now, my pastures, by the process described, in the month of August were so beautiful, that when Mr. Reynolds, a gentleman of very great enquiry and much information, went to Slane and rode over the farm, being on a very high hill, where he could see the principal part at one view, he lifted up his hands, saying, "You must have been at an immense expense to put every pasture in such admirable order!"—for they were like a continued piece of green velvet from one end to the other: and when I told him my method of proceeding, he said he never knew before that there was such an art in grazing.

I have given the above statement to shew my own disappointment in stall-feeding. Nature has ordained that it should not be the most healthy practice, though doubtless more stock may be kept by it than by grazing in the open fields; and, before I had tried it effectually, I thought the consequent advantages much greater than they proved. I supposed that, during hot weather, the flies teasing young stock in the day must prevent their thrift; and there is no doubt it may do them some injury: but seeing, when tied up in stalls, they do not increase in size like those pasturing in fields, it would seem that the flies' teasing was ordained by Providence to cause them to perspire, by obliging them to take greater exercise, which of course makes their blood circulate more freely; while the pure atmosphere is healthier than stagnated air: the dews and rains also may be as necessary to animals, in the manner they receive them, as to plants. Again, it may be seen even in horses that work, that they take great pleasure in rolling, after hard labour, on the ground, and frequently on ploughed land, or in wet and dirty places; from which

they probably receive some further benefit that is not immediately apparent. And it is a doubt with me, if a given portion of grass land were charged with a certain number of stock, and an equal number stall-fed, all charges being kept, debtor and creditor, whether the land would not pay more money, properly stocked, for grazing, than when mown and given in stalls. But this observation will not apply to seeds on land, clover especially, as the treading would be very injurious: tares, and such-like crops, cannot be eaten in any manner so advantageously, even if given to sheep, as by being put in cribs; although many acres are grazed by sheep, but they waste nearly one half by treading. I calculated that cattle would fatten much better when stall-fed; but in that also I was highly disappointed: I did not prove it myself to any very considerable extent, but I saw it tried by a neighbour, when I lived in Ireland, in the greatest perfection; where, though the cattle would live and do well on tares, rye, oats, &c. during the summer, they would not properly fatten. The collecting of dung was another thing I reckoned upon; and in that some small advantage is gained, but by no means equal to what I expected, as I had not duly appreciated the difference of dung made in the heat of summer, or even in the months of the sun's advance and decline. I well knew long ago that one load of dung made in the fold-yard in the months of November and December was worth more than two made in April and May; but I did not at that time clearly understand the cause: I thought it arose from its lying for a long continuance in the bottom of the fold, which is certainly unfavourable to it. But I have since had the trial of manure made in summer by stall-feeding, which at the time I formed my calculations I thought, from the juiciness of the food, and the quantity of urine the

cattle void, must be superior to dung made in winter from dry straw; and I was not a little surprised to find it otherwise: in the summer season of the year, the sun, by quickly exhaling the saline particles from the dung, very frequently leaves it a mere *caput mortuum*.

There is something remarkable in the horses being subject to scurvy at tares, and other green food, when stall-fed: I infer from this, that the dew during the night is beneficial to the health of the horse, as I found my horses to thrive better on green food in the fold-yard, and turned out at night, than when fed in the stable.

The acre of tares has been valued, by some projecting farmers, as high as from 6*l.* to 10*l.*; but the average value for this use, in Dorsetshire, where they are in very general use, particularly those grown by Mr. Bridge, and no better in the county, is from 2*l.* to 3*l.*: the quantity of dung made from one acre, five waggon-loads.

SECTION XXII.

Method of treating Horses for Husbandry in Winter, on a much better and cheaper Plan than is usually practised.

HERE again cut straw will be found of infinite use, and will save many loads of hay. Although hay, in some parts of the kingdom distant from a market, may not be frequently offered for sale, and consequently the farmer not set so high a value upon it; yet if he were to keep a regular account of what hay is eaten by his horses during the winter, and charge the cost and trouble of making and harvesting it, and the rent of the land, he would find them a serious and heavy expense. I am of opinion, that in London, hay, at the average price, is the most expensive feed for horses. I knew a stable-

keeper of eminence, who was of the same opinion: he always said hay was dearer than corn; and as he dealt largely in both, he was likely to know something of the matter. I have always found it to be so in my practice.

I have tried experiments to keep horses upon grains, potatoes, ground corn, bran, malt-combs, carrots, &c.; but never found any thing so cheap as chopped straw. During the winter 1795—1796, I did not suffer one of the nine horses I kept for the use of my brewery to eat any hay whatever. I had two saddle-horses, which at times were ridden hard, and were never free from fair work (for I do not like man or beast to be idle); the principal part of their food was likewise chopped straw, with a regular quantity of corn. I set apart for this purpose the produce of six acres of wheat-scouge, or wheat-straw lashed; and ordered a man to thrash some of the straw over again, by way of ascertaining how much wheat would be consumed in the straw. He was two days on this business: but the wheat he got out was worth no more than the cost of three days' labour. I must also acknowledge that the wheat in this straw had a great deal of the fuzzball or smut, and for that reason was not thrashed, but *lashed*, lest the flail should bruise the fuzzballs, and turn all the wheat black. Wheat at the time was 8s. per bushel. I therefore saved the wheat-straw, and added six acres of Tartarian oats in the straw, which was remarkably long, six feet upon an average. This quantity of oats and wheat-scouge served my nine horses from the middle of September, 1795, till the month of June, 1796, without any rack-meat or grass. In the month of June the nine draught-horses were turned out to grass, during night.

It is to be observed here, that I do not speak of chopped straw as a substitute for corn: but I mean that it may well supply the place of hay; and in that respect

will be found a considerable saving even for the greater part of the summer.

The two saddle-horses were not much in the stable during the summer; and the twelve acres of straw, besides producing food for my nine draught-horses, and some given to cows, fed my saddle-horses likewise until a month after harvest: the whole being a period of thirteen months. Some of the wheat-scourge was left. It is to be noticed, that during the summer months I had grass mowed, which was mixed with the cut straw.

Now, let the farmer compare this method in point of expense with that to which he has been accustomed; or let him attend to the calculation of expense of my own for one or two years prior to the time of which I have been speaking. I charge for the same number of horses the rent of a close, for which I pay

	L. 28 7 0
Tythe	1 7 0
Expenses of harvesting, at 5s. per acre . .	2 5 0

L. 31 19 0

If the eddish pay the assessments of different kinds, it is as much as can be expected.

I then bought not less than 40*l.* worth of hay, exclusive of the expenses enumerated. The weekly allowances of corn were two quarters of oats and nine bushels of beans. Next winter, when I used chopped straw, I stinted them to a shorter allowance, six bushels, of beans, and discontinued the oats. For six successive weeks I gave them potatoes; but, having found one horse dead in the stable, and in a few days another very ill, I dropped the use of that kind of food; though I am still in doubt whether the potatoes were the cause of his death. As horses are remarkably fond of the root, my man might

perhaps give them too great a quantity. The horse which was found dead seemed to have died without pain. He had eaten up all the food given him over-night. The men left the stable at nine o'clock in the evening, and at their return next morning, before six, found him lying in such a posture, that they thought him only sleeping: he had not in the least disturbed his litter, which he must have done had he struggled.

I will now state the difference in respect to keep for two winters.—

Expenses according to the old Method.

	<i>L.</i>	<i>s.</i>	<i>d.</i>
To hay	71	19	0
Two quarters of oats weekly—104 quarters, at 1 <i>l.</i> 10 <i>s.</i>	156	0	0
Nine bushels of beans weekly—468 bushels, at 6 <i>s.</i>	140	8	0
	<hr/>	<hr/>	<hr/>
	368	7	0

Expenses according to the improved Method.

To six acres of wheat-scourge, at 2 <i>l.</i> 2 <i>s.</i> per acre	12	12	0
Allowing 1 <i>l.</i> 1 <i>s.</i> per acre for the wheat, which is by far more than it is worth, as many farmers would not have accepted of it for thrashing	6	6	0
Six acres of oats, at 10 <i>l.</i> 10 <i>s.</i> per acre . .	63	0	0
Cutting straw; one man, fifty-two weeks, at 12 <i>s.</i> per week	31	4	0
Six bushels of beans, for fifty-two weeks, at 6 <i>s.</i>	93	12	0
	<hr/>	<hr/>	<hr/>
Total . .	<i>L.</i> 206	14	0

				<i>L.</i>	<i>s.</i>	<i>d.</i>
	Brought forward	.	.	.	206	14 0
				<i>L.</i>	<i>s.</i>	<i>d.</i>
	First method	.		368	7	0
	Improved ditto			206	14	0
	Balance in favour of the improved method	.		161	13	0
				<i>L.</i>	368	7 0

The work of the horses was nearly the same each winter. Twice in every week six of the nine were used to go from Doncaster to Sheffield with a waggon loaded with about 800 gallons of ale. The weight of the waggon and ale exceeded six tons; consequently, each horse had full one ton to draw for his share. The distance between Doncaster and Sheffield is eighteen miles, which made in the aggregate seventy-two miles per week; but they frequently had to go a mile beyond Sheffield. The journey to Sheffield and returning home commonly took up twenty-two hours: the spare days the horses were employed either going out with ale, or at plough. I could perceive no difference in respect to their condition between the years when they were fed according to the first method, and those in which they were fed, according to the improved method, with straw, &c. They performed their work well each year; and they certainly had employment enough. It may not be unnecessary to observe, that during great part of those winters in which the horses were fed with straw, each horse worked his dray, which weighed about twenty-two hundred weight: but I found this hurt the horses' backs very much, and hindered their thrift; I therefore discontinued it.

In the year 1793, I erected a mill for the purpose of grinding oats and beans for my horses. But I was much

disappointed: for, contrary to my expectations, I found this to be the worst of all methods; though I persevered in it for some time, thinking it might answer in the end. At first, I gave the number of horses before mentioned two quarters of oats and nine bushels of beans only a little broken weekly: they soon lost their flesh. I then had both oats and beans ground to meal, and even straw: but the horses appeared worse. Suspecting that possibly the men might rob the animals of their corn, I rose early and attended them while eating it, both morning and evening; but, in spite of all my vigilance, they continued decreasing in flesh. Still I thought it impossible the corn should become worse by being ground. My men, however, did not like the trouble of grinding; and, as we were at the time much hurried with business, they sometimes neglected it, and at length gave it up entirely; for which I was not sorry. I was really ashamed of this scheme; for it had cost me upwards of 20*l.* to erect the mill. I do not here estimate the value of the power given to the mill-work, as that part was made before for the brewery.

I could not in any manner satisfactorily explain to myself why corn should be so much worse for grinding; but a short time afterwards, I saw another proof that it really is the fact. I had occasion to go a journey; and, the weather being fine, I got upon the box with the stage-coachman. He had two pair of very fine horses in seemingly high condition, which I took notice of and praised: but the coachman said, I should see them so tired before they reached the end of the stage, that he should be hardly able to whip them forwards. I expressed my surprise at this, as it was but a fifteen-miles' stage, and asked him whether his horses were *soft*. He replied, No; it was the fault of his master, who had bought a quantity of bran, and mixed it with ground oats and beans; which food made the horses so weak,

and occasioned them to skit to so violent a degree, that in such hot weather as we then had they could scarcely crawl after they had gone three or four miles. "You will presently see them," added the man, "in such a miserably relaxed condition, that they will be as white as your shirt, and sweat in such a manner as to excite pity." The corroborating evidence of the coachman convinced me of the cause of my horses looking so bad: but, desirous of hearing whether the coachman was capable of giving any reason for his assertions, I remarked, I always understood that it was best to feed horses with ground corn. "Then you understood wrong, master," said he; "for I know my horses have been much weaker since they have been so fed." "But," I continued, "probably they are allowed less now than when they fed on unground corn." "No," he replied; "for they have all they will eat." As this man had spent his life among horses—in his youth was brought up in the stable, afterwards a post-boy, and then a coachman—I had the curiosity to enquire of him how the different masters he had lived with used to keep their horses. In the number he mentioned, there was one who made use of chopped straw, with one third of saint-foin and beans, but no oats; and whose horses performed their work better and were stronger than any others he had ever known. He said, that for middle-aged horses the beans were not split; but for the very old, or the very young, they were, and that the harder the beans the better. The quantity of beans given with the saint-foin and straw appeared very scanty to me; but the coachman assured me it was fully sufficient.

I am now convinced that ground corn is not proper to be given to working horses. If a horse stand in the stable, he will fatten on bran, which will not support him if he have common exercise, as his carcase will soon

shew. A horse will fatten sooner at grass in a good pasture, than in a stable on the best of corn: but in the latter he acquires a firm hard flesh, that will bear work; and in the former only a washy, soft flesh, which diminishes with trifling exercise. In short, a horse that stands in the stable to be *made up*, will fatten with almost any thing. I have tried carrots, potatoes, bran-paste, &c. but the great desideratum is, to keep working horses well and cheap; and, in thirty years' experience, I never yet have found any thing equal to chopped straw with corn.

I have tried beans in the straw; and excellent food they yield after Candlemas. Peas are improper; for pea-straw is so crooked as to prevent the cutting it short enough, and the horses will throw it out with their noses.

Great part of the savings arising from the use of wheat-straw depends much upon the men who cut the straw and give it to the horses. For, if the man who serves the horses will not give them a little at a time; but, on the contrary, to save himself trouble, throws in one skuttlefull after another, and continually keeps the manger full; the horse in that case will not thrive, and, instead of saving, the food recommended will prove expensive. If a small quantity at a time were thrown in, the horse would be enticed to feed: and chopped straw, mixed as before directed, would be found to answer every purpose.

Let the horse always have a clean manger. When he first comes into the stable, he will eat the straw greedily by itself, if you put in but a small quantity: when you find he begins to tire of straw, give him a few beans with it; constantly taking care to serve with a very sparing hand, until he has had enough, which is easily known by an attentive feeder.

In my opinion, if, to a quick-feeding hungry horse,

you were to spread a quartern of oats, with an equal quantity of chopped straw, over the bottom of the manger, in such a manner that he must take some time in licking them up, and be obliged of course to chew every oat, it would answer the purpose of twice the quantity of the same corn thrown into the manger on a heap. For, in the latter instance, he would swallow the oats whole, and they would pass through him without being properly digested. Chopped straw is good for making a horse thoroughly masticate his food: and I have reason to believe he will thrive and work as well so fed, as with the same quantity of corn and hay from natural grass given in the common manner. Horses will eat this kind of food better if water be put to it in the manger: I have even found it a good way in feeding road-horses when I travel, to water their corn in the manger, especially in hot weather. I have likewise found, from experience, that when a horse is taken out of a grass field, or from moist food in the stable, and corn given to him, and immediately taken to ride, or to any fatiguing exercise that will cause him to sweat, that the corn quickly passes through him along with the moist food, and consequently cannot be of the requisite service: I therefore conclude it is better to feed horses overnight, when the corn remains a proper time in the stomach, and must of course be of more utility.

SECTION XXIII.

Giving Mares the Horse.

THE age at which stallions are considered fit to be put to mares, is commonly at two years old, and they are mostly continued to a very advanced period. My father made use of one stallion, of the dray kind, for more

than twenty years; and, though there are many opinions respecting the age of stallions, some persons contending that the foals produced from old horses are smaller, there was not the least difference in the offspring, as they were equal in every perfection, from the same mares, for many years. Having but one filly foal for fourteen years, as he was in danger of losing the breed, he tried the experiment of giving the mares another horse, and the first year he had three filly foals out of four mares, the very same that had before continually bred colts; the second year the same number: after which time he gave the mares the former horse, and they then bred a regular proportion of fillies. This old horse was a very great favourite of my father's, and continued to produce the very best colts in the county when he must have been near thirty years old, and one mare twenty: his offspring, well furnished, were seldom less than seventeen hands high at the age of two years.—This circumstance, happening under my own observation, so strongly proves the idea, that the progeny of aged animals are smaller, to be erroneous, that I thought it worth recording.

The more fully to elucidate this matter, and to substantiate the fact, I will notice some capital racers that have been bred from aged stallions and mares; as this species requires much nicety in breeding, indeed more so than any other kind of horse. From the former, I would instance Match'em, Partner, Blank, Bolton's Starling, Young Marsk, Snap, and Eclipse; and several others might be mentioned. The following aged mares have bred good racers at very advanced ages.—Mr. Pratt's Squirt mare bred seventeen foals; the last was Purity, which she produced at the age of twenty-four years, and proved equal, if not superior, to any of her former breed: Purity was the dam of the famous horse Roek-

ingham. Mr. O'Kelly's Tartar mare bred, when she was twenty-eight years old, the noted horse Mercury; and at the age of twenty-nine, Volunteer; both strong horses, and known to be good runners. Atalanta bred Rosalind at an advanced age—a most beautiful mare, and a good racer. Mr. O'Kelly's Tartar mare, mentioned above, bred the dam of Mr. Hutchinson's Oberon when she was thirty-six years old, as may be found in the Stud-book; and he was a good runner. This Tartar mare was fourteen years old before she produced any racers, having been covered by common stallions. She was bred by the Duke of Bolton; after his death she became the property of Peter Hammond, Esq. who made a present of her to the Reverend Mr. Lascelles, of Gilling, near Richmond, Yorkshire; this gentlemen some time after, at Newmarket, gave her to a friend of his in the south of England, who occasionally used her as a hack, and bred from her. When she was turned twenty years old she was sold for five guineas; after that time Mr. O'Kelly bought her for 100 guineas, and he declared she was the cheapest mare he ever purchased, having cleared above twenty-five thousand pounds by her produce. Her pedigree was as follows: she was got by the celebrated horse Tartar; her dam by Mogul (a son of the old Godolphin Arabian), grandam by Sweepstakes, great grandam by Bay-bolton, great great grandam by Curwin's bay Barb (sire of Brocklesby Betty), great great great grandam Old Spot, out of a Vintner mare, a good runner. The stock that Mr. O'Kelly bred from her were all got by Eclipse, and better blood could not be produced. This mare seems not to have been trained, and therefore her powers were not known: which it may be proper to notice, as I have recommended breeding from tried mares and horses. But it will sometimes happen that the best of racers go

unnoticed: Flying Childers' being trained arose from mere accident, as at two years old he was, by Mr. Childers, forced upon the Duke of Devonshire's training groom, in a bargain for a fine racing mare, at the sum of eight guineas, and rode as a hack for one year on the road, by a boy who went errands. No doubt, many other good racers may have equally escaped the attention of breeders and trainers.

Having thus given sufficient proof of aged stallions getting good stock, and aged mares also breeding the same, I can likewise assert, from my own experience, that a colt at two years old will get as good stock as at any future period: but, on the contrary, fillies at that age, or even three years old, have been proved to breed smaller stock; which indeed may reasonably be expected, as they are then changing their teeth, and will consequently give less milk, of course becoming worse nurses. I would, therefore, strongly recommend that mares should not be put to breed before they have attained the age of four years.

In regard to giving mares the horse, it is necessary to observe, that the proper time for such as have foals sucking them is nine days from the period of foaling; and not to exceed eleven days, as they are, almost to a certainty, in season at that time; (if a mare be put off, it frequently happens she does not stand her covering); and it is very common to try her again the ninth day following; but, by some observing men, that is thought an improper practice, as teasing the mare with the stallion will cause her to cast her stinting: an approved method, therefore, is, not to try her before the eighteenth day; and if she do not then stand her stinting, it is judged necessary to open a vein, and take some blood from her, immediately after covering. If a stallion be a slow coverer, it is considered expedient to

give him about one quart of cream and four hen's eggs in a morning: but, in a case of this nature, the sow-thistle, when of a strong luxuriant kind, is found to be equally good, if not better, giving him as much as he will eat: there are many sorts of sow-thistle, but those which produce the most milk when broken are the best for the purpose.

SECTION XXIV.

Method of Shoeing Horses in the most proper Manner.

THE foot of a horse should be preserved in the same form it bore when he was four days old; that is, the toe short, and the coronet of the heel, which is by nature formed to guard the frog, ought to be kept as high as it can with propriety. The coronet seldom wants paring; but the corners, which are in the inside, between the hoof and the frog, are too often neglected: many horses are hence deemed lame, though the cause of their lameness cannot be discovered; but a clever smith, with a suitable paring knife, will give the horse ease in five or six minutes. This lameness is very similar to that arising from the great-toe nail of a man's foot turning downwards at the corners and growing into the quick. I rode a horse the feet of which were in this state, and he would sometimes want easing as often as once a week: but, so little is this lameness known to most smiths, that when they are told the cause, and how to remedy it, they have no knife proper for the purpose.

There is one thing should be particularly regarded in shoeing horses, which is, the shoe ought to be made to fit the foot; and not, as commonly is the smith's practice, the foot formed to fit the shoe. When the toe is shortened, and the heel pared as described, it causes the horse to stand straight on his fore leg, not throwing so much weight on the sinew; the shoe ought, therefore, to fit

the foot to a hair in every part: for should the shoe be longer than the hoof at the toe, it may cause a very correct, safe-footed horse, to stumble; or if the shoe extend too far sidewise, or the foot be pared lower on one side than the other, it will have the very same effect; for by treading on the shoe, instead of bearing his weight on the hoof, when there is a portion of iron on the outside of the hoof, it throws his weight to one side, which not only wearies the horse, but is liable to throw him down. Again, if the shoe be longer than the corner of the heel, the piece of iron extending acts like a lever behind, as if it were intended to bruise the horse's heel; for should he happen to tread on a loose stone, his foot being hollow, the whole of his weight must rest on that inch or half-inch of iron which projects beyond the heel—like poisoning any thing with a crow or bar of iron. In short, the shoe ought not to cover more ground in any direction than the foot would alone; for if it do, it will break the horse's hoof, draw out the nails, and consequently become loose: when he treads the least uneven, which must frequently be the case, the superfluous iron acts in the way just mentioned. The shoeing of horses is of no further use, in a general way, than to preserve the hoof from breaking, and the foot from wearing, by chafing on the gravel until sore; therefore the shoe ought to be so formed as to answer the intended purpose. Many smiths, when the horse's hoof is broken, by way of making the hoof get up and grow faster, put on a shoe a quarter of an inch every way larger than the foot; but this, on the contrary, by the horse at times treading unlevel, loosens the shoe, and tears his hoof all to pieces; for when the horse treads on one side of the shoe, where there is no hoof to support it, the nails draw on the opposite side—exactly the way in which the smith takes the shoe from the horse's foot.

The sole of the horse's foot is the next thing to be

considered. If it be very hollow, and narrow at the heels, great care should be taken to pare as near the quick as the foot will bear, there being much heat in feet so formed, and the hoof and foot grow very quickly: the heels ought to be thrown as open by paring as the foot will admit. To shew the necessity of paring this sort of feet, I have known a post-horse, which was very serviceable when in constant exercise and hard work, that, from some accident, got a lameness, and was turned out to grass; he was so lame, he could scarcely stand to eat: this horse was shewn to me as being extraordinary, the person observing that those kind of feet were better at work than at rest;—not considering that the feet of the horse wanted paring. Feet of this description should be constantly stuffed with cow-dung, without either tar, grease, turpentine, or any other thing. It is wonderful what regular paring and stuffing will do to these sort of feet: though they cannot thereby be made sound, the horses may often be rendered serviceable; indeed they are frequently observed to be the better for work:—by the by, they are often injured from want of shoeing; for their hoofs being tough, they hold their shoes on their feet longer than many other horses, and hence get shod seldomer than is necessary.

If the horse have a flat, or what is termed an oyster, foot—which is very different from the last-described, it being very flat, and the sole and frog extended so full as to resemble the back part of an oyster, receiving little protection from the hoof, and so weak at the heels as to divide and become sore if in use and not protected by shoeing—the shoe must be thickest on the outer edge, and dished so that the shoe may not rest on the sole, for the quick is very near, and the shoe would lame him if it touch that part: those horses sometimes require bar-shoes to keep the foot together, or, in using, the foot is ready to divide. Some smiths use leather under the

bar that crosses the frog; but a piece of old felt hat is better, as the leather is of a drawing nature, while the hat is the reverse: if a piece of hat be put under the shoe all round, it will be found of service, for, as the foot is both thin and tender, the hat renders the shoe easier, and helps to keep the foot together. Feet of this kind seldom want stuffing, as they are generally too soft by nature; but if any stuffing be required, tar, with a very small quantity of horse turpentine put to it, mixed up with wheat bran, should be used.

In shoeing horses, let their feet be what they may, the nails ought to be made of very tough iron, and fine or small. When a horse is shod the first time, (as it is customary, in some parts, to remove the shoes), the nails should be driven as high up in the hoof as it will permit, so that when the shoe is replaced the nails may be driven into the same holes, or about the same height, that every other time the hoof may be renewed: and the nails should all be driven to an equal height in the hoof, so that the clinches may form a row. The smith should weaken the nail before clinching underneath, and turning the clinch over the strong part: by so doing, the nails will draw or clinch more securely, and not rise so soon; for when clinched in full substance, the nails not drawing tight, the horse by beating the heads upon the stones will sometimes cause them to rise up immediately. The nail heads should be thin, so as to fit within the crease of the shoe; for if the heads of the nails overhang on all sides, in travelling on stony roads they are liable to break off, or otherwise bend down and loosen the nails. When the smith drives the nails in many directions, they are apt to tear the hoof to pieces, as they work one against another.

Shoeing horses that are liable to cut, or brush one leg against the other.—The shoeing of horses that are liable

to cut, is, generally speaking, very improperly understood by smiths. It is a maxim with them, to put some cart-oom on the hoof, to discover in what place the horse hits, with the intention of forming the shoe with a small hollow on the inside of the foot, to pare the foot away on the outside, and make the shoe thicker and sometimes feather-edged on the inside, thus raising the inside much higher than the out; which is exactly contrary to what would be right: for although the moving foot does the mischief, it is the standing foot resting improperly, which causes the former to hit it; therefore, the art required, to prevent the horse from cutting, is so to contrive that the standing leg be not in the way. Now, in the present method the centre of the horse's body is brought perpendicularly over the standing leg, by which means the moving foot comes nearly in a direct line with the leg at rest; and the greater the weight, the more the animal's body is thrown outward, and the leg inward. The intention of the smith is, to make the fetlock joint bend outward; not considering that the position of the body of the horse is thereby changed. It is generally weight that causes horses to cut, as very few cut to hurt themselves when they are not loaded; and the greater the weight and the weaker the horse, by traveling long distances or being low in condition, the more liable he is to the accident; which fully proves the present method wrong. On the other hand, if the standing foot have the shoe so formed as to be highest on the outside, and the heel of the shoe be rather wider than the hoof, and turned up with what the smith terms a caulking, the body is brought towards the moving foot; and the standing leg being thus inclined from the ground, if the horse be fifteen hands high, his upper part will lean some inches from a perpendicular drawn from the ground on which the foot stands, while the

rider's head will be more than one foot wide of the two extremes. Thus, in the different methods of shoeing, the one brings the horse's body, and the weight upon him, to rest beyond the perpendicular from the standing foot outwards, the other inwards. 'It must be evident, when the horse is shod highest on the inside, it will cause the leg to bend outwards, and the body to lean in the same direction; on the contrary, when he is shod highest on the outside, it brings the upper part of the leg and the body inwards: therefore the whole art in shoeing horses, to prevent them cutting, is so to contrive as to throw the weight of the body from the standing foot; and then the more weight the horse has upon him, the farther the moving foot will be in its position from the foot on which he stands. As the foot the horse moves cannot be altered in its position but by causing the body to lean from the foot that stands on the ground, when the horse is shod with the outward heel a little wider than the hoof, about a barley-corn longer than the heel, and turned up, it will cause him to rather turn his toe in, and by that means give the ancle a twist, which alone would prevent him from cutting; for the eighth of an inch would rarely be found insufficient.

SECTION XXV.

Corns in Horses' Feet, Cause of, and Cure.

THIS lameness is, in almost every instance, brought on by shoeing improperly, which has been fully explained in the preceding pages: by inforcing a judicious mode of shoeing, this evil would be scarcely known. The cause of the corn is a bruise, occasioned by shoeing the horse too long at the heel, and paring it down too near the quick; or sometimes from, what the smith terms,

not 'dressing out the foot' as it ought to be, by only making use of the butteris, for want of a drawing-knife, to open the heels between the coronet and the frog: and I believe it may be possible to bring on corns by keeping the horse dry in the stable for a long time together, without stuffing his feet. However, when the cause is known, the cure is not very difficult. If it arise from a bruise, the principal consideration is, to shoe the foot in such a manner as to prevent any further injury, which is attended with some trouble; but the foot should first be pared. The corn is generally in the corner of the inner heel, which shews it is occasioned by pressure on that part: it is an almost constant practice to pare out the corn, and leave the hoof standing up; and some persons put on bar-shoes; but both these methods are materially wrong. The only thing wanted being to prevent further bruises, the corn should be very carefully pared out, as clean as possible, without drawing blood; the hoof ought to be very nicely cut away, as far and as low as the corn extends; and when the shoe is put on, it ought not to cover a hair's breadth farther than to where the corn has been removed, as the part ought to be left so open that neither stones nor dirt can remain in the hollow or hole whence the corn has been pared out. Then the less weight presses on that side the foot the better; on which account the shoe must, in a general way, be about three quarters of an inch shorter than it would were the foot and hoof perfect. But, to guard and preserve the hoof from breaking, the heel of the shoe should be as short as possible, and cut off in a slanting manner, so that the side be formed with what the smith calls 'washes,' viz. that the corner of the heel on the outside be nearly an inch longer than the inside: there will then be a sort of corner formed inside the shoe, which should be raised, to make that

side of the foot higher than the outer or sound side, so that the greater weight may rest on the latter: the shoe will then, in appearance, seem but about three quarters of a shoe. Some smiths, whom I got to shoe horses with corns, as one side of the shoe will contain only three nails, would, if they had not been observed, have shod round the toe; which is a very bad practice, as it causes a horse to go as though he had lost a joint: in fact, such is the case; for there is a joint, not easily perceived, near the toe, within the hoof, which, if the horse be shod round the hoof, is prevented from bending in the way it ought; somewhat similar to a man walking in a wooden-soled shoe. The outer heel of the shoe should not be raised, but be quite flat; nor should the shoe be either much wider or longer than the hoof. When a horse has corns, and a cure is attempted, the feet ought, while in the stable, to be stuffed with fresh cow-dung twice a day, and shod, at the least, once a fortnight, as the hoof and foot of a horse grow so remarkably quick, that the former is apt to surround the corn and confine it, so as not only to be painful, but to occasion a sort of matter to gather and break out at the top of the hoof, if not pared as described. I have bought horses with corns, and some of them have been completely cured; while on others, which have been entirely freed from the corns, they have again appeared; but this I believe to arise from some fresh bruise, or probably from the smith making too free in shoeing the usual length before the part was sufficiently healed and hardened. I am of opinion that any corn may be cured with proper attention, by frequent shoeing very carefully, and stuffing the feet. I never apply any thing to the part unless the smith make it bleed, when I have used a little hot tar or pitch; but I think both improper, as they are heating, and the part affected

is already too hot: I know nothing so cooling as cow-dung.

I have stated that paring the corn out, and leaving the hoof standing, is wrong, and that for the following reason: if the hoof be left, the foot being taken from it, when a shoe is put on, it presses the former, and also the sore part, which by removing the hoof is avoided. The bar-shoe is likewise improper; because, the bar going over the hollow part of the foot like a bridge, when the horse comes into dirty roads, but especially stiff clay, the round of the shoe in the inside gets filled with the clay or dirt and stones, forming a substance as hard as it could be rammed by any contrivance.* Thus the dirt is forced into the hollow, until it bears more weight than any other part of the foot, and renders the horse very uncomfortable. It is therefore clear, that in using the bar-shoe the clay or dirt is so encompassed that it cannot get out while the horse is travelling; but by the other method, this inconvenience can never happen.

When the foot is pared, there will be seen a little black bruised spot, having the appearance of blood, though sometimes quite dry; and at other times a little matter, which, if neglected, would rise upwards and come out at the top of the hoof, which makes it necessary to keep the part pared.

SECTION XXVI.

Disorders in Horses, with several approved Remedies.

THE horse is subject to almost as great a variety of diseases as mankind; and the most painful, common to both, may be reckoned the colic, or gripes. This is not only painful, but is often a very fatal disorder to

horses. There are many causes to which it owes its origin; but the most frequent is, the retention and induration of the fæces in the large intestines, and sometimes in the small ones. Sometimes it proceeds from the horse, when heated by labour, drinking too freely of cold hard water. I have seen a horse that died of this disease opened, when not more than two inches of the small intestines were affected, but that part was putrid, and broke with the least touch of the finger. It appears to me that cold occasions the disorder, and that, to effect a cure, immediate warmth is essentially required. Before that time, I had been accustomed to give one pint of gin as a dose; but I have since found that a full quart is necessary; and if an ounce of black pepper be infused in it, the better:—burnt cork, or the seed of burdocks, are very good; but a quart of gin is the most effectual. I had a horse, when I lived at Doneaster, taken with this disease while I was out coursing; and the men had neglected giving the gin, but had applied to a horse-doctor, who had administered his dose. When I returned home, the animal was blown up like a bladder, and stretched out at full length, dying as I thought. A gentleman was with me, who kept the head inn, and whom I had induced to adopt the practice of using gin for his post-horses, of which he had many: this gentleman had found the remedy so efficacious among his horses, that he immediately asked my men if they had administered it; the reply being No, he desired them to fetch a bottle of gin, and having a cork-serew in his pocket, he drew the cork, and gave it, while the horse lay apparently dying, with scarcely any life left in him; indeed I thought my friend might as well have given it to a dead horse. But the result was, before we had eaten a beef-steak, which was cooking for us, the horse was upon his feet, and again eating his food. The intestines are sometimes affected in one

part, and at other times in another; but, as the gin is hot, and at the same time diluting, it acts as an immediate relief to this disorder. When the disease lies backwards, at a great distance from the stomach, common reason tells us, there ought to be a sufficient quantity of gin given to warm every part, and I have always found a full quart to be necessary.

It sometimes happens, in horses drawing, or taking strong exercise, that they do not void their dung and urine at proper intervals, and thus have a lodgment formed, in a much larger quantity than there ought to be, near the fundament, which will prevent them making water; and, by the two passages being stopped, will occasion violent pain. When that is the case, the gin may not have sufficient power to force out the excrement. I once had a mare, which drew before in my team, of great spirit and resolution, that was subject to the colic: coming in from a journey, the gin was given to her (I gave only a pint at that time), but it did not afford her immediate relief, as it had done on some former occasions: at length, she had so violent an attack, that the gin was found totally ineffectual. A dorse-doctor was sent for; but whatever he did to her seemed to have no effect: at last she lay as if dead, and the horse-doctor, believing that to be the fact, told the carter he might put a rope round her neck and draw her out from the stable. Happening to be present, I put my hand to her heart, to ascertain if she had any pulse left (the beating of the heart is called the pulse by horse-doctors), when I found, to my great surprise, that it beat more regularly than before: I therefore observed to the doctor, she was recovering, which proved to be the case. This was in the night: and while she lay struggling and beating about with pain, when we supposed she was dying, she had forced a very large quantity of dung from her, which it

appeared had given her ease; and her lying in that quiet state was only composing herself, after her violent sufferings. This instance proved to me the necessity of raking every horse in this disease, as one certain relief; which is done by anointing the hand with hog's-lard, oil, or grease of any kind, thrusting it into the fundamept, and drawing out all the dung within reach: and it is a safe way, after the raking, to give a clister of the emollient kind, with one pint of gin in it, as the gin may warm the intestines, while the clister moistens a portion of the small guts. This mare recovered; and she was afterwards, at times, attacked with the same disease, but the gin, raking, &c. always gave her immediate relief.—Opening a vein, at the time of the attack, is very proper.

I have applied many different remedies before I made use of the above; but it being the most efficacious, I shall not recommend any other.

Mares slinking their foals.—This subject being treated on in the section on "*Breeding*," I will only give the means of prevention.—Take a large handful of pigeon's feathers, and lay them on a pan of hot coals, so that they may smoke but not blaze; then hold these smoking feathers under the mare's nostrils, for at least ten minutes. I never knew a mare slink her foal after this remedy being used: though I generally apply it twice, as it is cheap and simple; the first time about Michaelmas, and again at Candlemas. If a mare be in the act of casting her foal, kill a fowl, take out the craw, and cram it down the mare's throat: this will prevent abortion:—some say, a sparrow will have the same effect. I have known the craw effectual when a bleb has appeared. Give the mare some walking exercise; when she is put into the stable, let her have about half a peck of good dry wheat, and open a vein: but, even in this instance, it is advisable to smoke with the pigeon-feathers.

Strain in the back sinews; a very good remedy.—Take wet litter from under the horses, with as much urine about it as can be got, make a thumb-rope of it, and bind it very tight round the part affected, from the hoof to the knee; then take some of the horse's urine in a pail, and, with a small dish, throw it on the upper part of the leg, so that it may run down between the rope and the skin of the leg, similar to basting meat roasting before the fire: you must continue, as it were, basting the leg twenty or thirty minutes—the longer the better. If you cannot obtain the urine of horses pure, without water in it, chamberlie will do;—if made warm, the more effectual. The rope should not be let remain on the leg more than twelve or fifteen hours, or it will blister the part, and rather blemish the horse, by taking off the hair, which, when it comes again, will look rough and unsightly. This remedy generally effects a cure in twelve hours: the sooner it is applied after the misfortune, the more certain the success. I have known a hay-rope wrapped round the part, the horse being made to stand in a stream of cold spring water for the space of twenty minutes, effect a cure: but in both cases it is heat on which the efficacy depends; and therefore the horse-urine is by far the best.

Strain in the shoulder, or stifle.—Take an ounce of spirits or oil of turpentine, two ounces of spirits of wine, two drams of oil of petre, put them into a bottle, and shake them thoroughly together; rub it on the part very well with the hand, and repeat the application for about three days, giving the horse plenty of walking exercise: if it be a plough-horse, the plough or harrow is the best exercise. I have known a horse, when so lame in the shoulder as to trail his leg, effectually cured by ploughing with him, without any other assistance, in the course of two days. If the strain be in the shoulder, hopping

is a very proper proceeding, as, if the horse be out at grass, it causes him to use the affected leg; for a horse will, in some of those lamenesses, carry that foot, and consequently give it very little action.

In all cases of lameness internally, to discover where the disease is situated, it is only necessary to observe, that if the horse, when standing, put the foot forward, the lameness is in the foot, or in a lower joint; on the contrary, if he stand with the foot behind him, or holding it back, the disease is in some one of the upward parts: or it may be still more easily discovered when he moves, by his carrying the foot forward if lame below, and leaving it behind, or rather trailing it after him, if in the upward joints.—In cases of internal sickness, the horse will be seen to put his head to the part disordered.

Colds.—If the cold be violent, take one pint of treacle, boil it in a quart of ale, and when luke-warm give it to the horse; then exercise him till he is in a perfect sweat: after this, great care must be observed to keep him warm. Put him into a comfortable stable, with plenty of thoroughly dry straw—if some other horse have lain upon it one or two nights, or it be dried and made warm by the fire, the better: shut all the doors and windows, and stop up every hole and crevice, so that no wind can enter; and let two men rub him, one on each side, for at least an hour, or till he is cool. After this process, cover him with some blankets or very large rugs, and put a hood or cap on his head and ears: all parts ought to be clothed, and the clothing should be rendered perfectly dry, and made warm by the fire; for when he has been caused to perspire, to effect which I have known rather violent exercise required, great care must be observed to keep him in that state, as if then neglected he might take more

cold: but, when properly managed, I have known an absolute cure made in twenty-four hours of a horse that was before very bad. Warm water must be given to him during the time; but by no means let him have water cold: if a handful of oat-meal or barley-meal be put in, it will have a good effect, by softening the water. In every kind of sickness the water should be given warm; seldom above a gallon at once, and that as often as he will drink it. Give him hot malt mashes, if boiling the better: and if some person attend him, and hold the mash under his nose, that the steam may go up his nostril, it will afford him much ease; should he not eat the mash, it will be of infinite service, and the oftener repeated the greater the benefit.

Strangles.—This disorder is epidemical, very similar to colds; it mostly arises from a gathering under the jaws, but goes off by a discharge of pus, and frequently without any assistance: but I have known it of so violent a nature as to kill many horses. When the danger appears great, the horse should be kept in a very warm stable, and have warm water, mashes, &c. as directed for colds; no kind of food whatever should be given that is cold in the stomach, cold water especially, as that would cause a chilliness in the blood, and prevent the substance either dispersing or drawing to a head. His head should be kept up; for I have known an instance of a horse, which was out at grass, that, by holding his head down to eat, would have been choaked before the substance had matured, to discharge the humour: he was obliged to be taken into the stable, his head kept up, fomented with chamberlie, cow-dung, elder leaves, white-lily roots, houseleek, and groundsel, twice a day, and a poultice retained on the part after fomenting. In this case, there can be no exercise given, as the least cold air would

prevent the gathering. Some persons hold a lighted candle on the part affected, to make it break the sooner, which is a very proper remedy.

Inflammation of the eyes.—Take a quantity of new milk hot from the cow, set it up in some kind of earthen ware, and cover it with a pewter dish, the hollow side downwards; and in twelve hours there will be a quantity of a sort of dew gathered in the dish; with this water, or dew, which is an extract of lead and milk, bathe the eye-lids, &c. very well, and it will shortly effect a cure.—This remedy is equally as good for the human eye. Some persons use cold spring-water to bathe the eyes, but the above is very superior.

Bruises on the eyes.—Take some warm chamberlie, and bathe the bruised part; then mix some honey and verdigris well together, dip the top or fine part of a feather in it, and apply it to the eye; this done once a day for three days is generally sufficient.

Eyes: disorder that causes the lid to swell.—This disorder sometimes happens, in hot weather, from flies occasioning the horse to rub his head against any thing; at other times it arises from a natural humour: in either of these cases, when the eye-lid is swelled, take the crumby part of a white loaf, soak it in cold spring water, and apply it as a poultice, which will almost instantaneously give relief. There being some difficulty in keeping the poultice to the eye, it is necessary to have a cap, and if a neck-hood to it the better: the holes for the horse's eyes to look through, will be a means of keeping the poultice to the eye. It is also necessary, in those cases, to open a vein; and a very useful proceeding to rowel under the tail, as that diverts the humours from the head. Some persons rowel under the jaws, which is very wrong, for that process draws the humours to the head. The head must be kept up, or the humours will settle downwards;

and, if in the summer, flies will pester the horse, and cause him to rub the part aggrieved. As it is essential, when those humours are flying about, to keep the body open, it will be proper to give the horse green food in the stable, if summer-time, and if in winter bran-mashes; and, either summer or winter, twice a week, one pint of salt dissolved in a quart of chamberlie, which, in every case, I have found to be the best physic for all domestic animals. This dose is not attended with the least danger, acting more gently than many other kinds of physic: if the horse be in the stable, he will require exercise, as with all other physic; but he is better with cold water than warm, except in violent cases of gatherings, bruises, &c. If the horse be out at grass, it may be given either morning or evening: the salt causes the horse to drink much, and moving about is good for him; he is sure to take more exercise at that time than usual, by going backwards and forwards, to and from water. I should prefer the morning, if in the time of flies, as they would cause him to run about, which would make the dose operate more powerfully. The horse is subject to few disorders in which this dose would not be useful: it cools the blood, by keeping his body open, which is necessary on almost every occasion; for by cleansing the intestines, the blood is purified: a want of attention to this particular is the cause of nearly all humours; for if the stomach be kept in right order, the whole frame is sure to be so likewise.

Lampas.—This disease is a kind of inflammation found in the roof of the mouth, behind the teeth or nippers. It is a fleshy substance, which grows up higher than the teeth, and prevents the horse taking his food at ease: it generally makes its appearance in young horses, two or three years old. The cure is effected by an operation, with a piece of iron made broad, and hooked, somewhat

like a small hoe : it has a handle of iron, about one foot long, and the hoc part is about three inches broad, sharp-edged. This instrument is made red-hot, and cuts out the fleshy part beyond the teeth, scaring at the same time.

Chafe in the fore bows, or under the brisket, between the fore legs.—This disease proceeds from a very hot humour, which occasions a swelling, that discharges a very acrid exsudation, causing a soreness, like scalding water. To cure this, take some fuller's-earth, put to it a sufficiency of soft water (rain or snow water is the best) made warm, to render it of the substance of thickish batter; rub it on by the hand, or rather plaster it on : this will effect a cure in a very little time. Some persons use the yolk of eggs, but that is not so good.

Horses that are swung in the loins, or broken-backed.—For this defect there is probably no cure : the farriers do apply what they call strengthening plasters, made of pitch, tar, and ammoniac, clammed or spread on white leather, or sheep-skin, but I never knew a cure effected. The symptoms by which this disease is known are, if the horse be going in a direct line, and you give him a sudden jerk round, he will slip down behind, or at least shew some weakness; or if you attempt to push him back, he will not be able to comply with your desire : —he may move in a direct line, and the defect not be discovered. It may be possible for a horse to have a swing in the loins, and yet be usable.

Wind-broken.—This disorder is known by the horse's flank, viz. between the rib and huck, rising and falling in an unusual manner : or if you nip or gripe the throat near to the jaws, or the upper part of the thropple, so doing will cause him to cough much, and blow in the flank like a pair of bellows. No cure has been discovered for this disease : lime-water is used for it, and is of some

service ;—made by putting unslaked lime in water, let it stand for twenty-four hours or longer, strain the water off, and give it to the horse. The food, both hay and corn, ought to be wetted with chamberlie.

Running thrush.—This is a hot humour in the foot, which is found in the frog, extending to the heel, and separates the upper portion of the hoof, or horny part, from the flesh: it is a sort of pus, or stinking matter, somewhat like the grease in the heels. To cure it, first pare off the loose part clean from the frog; then, with some chamberlie, wash the foot clean from dirt, and wipe it dry with tow: take alegar, put to it some ammoniac finely pounded, and mix them well together till of the substance of thick cream; rub this on the sore part, holding up the foot until it be thoroughly dried in, and let as much of the ammoniac remain on the sore part as possible:—a small quantity of black pepper may be put on before the mixture is applied. If there appear to be proud flesh arising, which is sometimes the case, take blue-stone vitriol, finely pounded, and apply it to the part before the ammoniac is used. The pus or matter will be very deep in the frog, and much attention is required to reach the bottom of it; but when the medicine gets properly down, it will mostly effect a cure, though the disease is very liable to return: notwithstanding, if care be taken, the horse may be made usable for many years, but he will continue rather tender.

Scratches.—This disorder is seen just above the hoof, about the fetlock joint, and a little beyond, causing the hair to look rough, with a sort of scurf, somewhat like the grease: it seldom, if ever, lames the horse, but has a disagreeable appearance, rendering the horse not saleable for near his real value; and must be termed an unsightly blemish. I know no cure for this disease. Many attempts have been made by the horse-doctors, by

blisters; but generally with a very ill effect—making the horse look worse than he did before. However, prevention is always preferable to cure; and, as the cause is evident, it may be sufficient to state, that it is brought on by the horse pasturing on watery ground; therefore, such places should be avoided for any horses, especially those of value:—it may be seen, particularly in the spring, that horses like to eat a sort of grass growing at the top of water, called water-grass.

Glanders.—This is a most dangerous epidemical disorder. It first appears by a running at the nose, which is more or less in all horses; but a rather acute discrimination is required to be able to distinguish it at its commencement: this must be ascertained by feeling under the jaws, where will be some small round lumps, of the size of a hazle-nut, which keep increasing as the disease advances; and whenever one of them (they are a sort of kernel at first, and are found on many horses quite free from the glanders) becomes attached to the jaw-bone, the disorder is confirmed. There never was known a cure for this destructive malady; and it has been judged necessary to shoot whole regiments of horses when it had got among them: carrier-waggon horses, and post-horses, have been destroyed by stablesful. The very manger at which one of those diseased horses has been, will communicate the disorder to any horse feeding at it for half an hour: and in stables that have contained infected horses, it has been found requisite to pull down the racks and mangers, and replace them with new. It is unlawful for any man to keep a horse with this disease, or to offer it for sale: it may be shot by any person, and the owner has no remedy by law. For these reasons, I would recommend, not only in compliance with the law, but as a measure of prudence, to destroy the first horse affected, rather than run the risk of losing the whole stock.

When the disorder is fixed, it is possible for shuffling horse-jockeys to make a horse stand a fair, so as, without attentive observation, to prevent discovery : but it is a corrupt matter, running sometimes from one nostril, at other times from both, of different colours, according to the degree of malignancy, or as the infection has been of shorter or longer continuance, being either white, yellow, green, black, &c. ; and during this time the horse keeps wasting in flesh, though he eats his food, and will do some work ; but the disease always terminates in death.

Pole-evil.—This disorder is found on the top part of the horse's neck, joining to his head, at the back of his ears, where the bridle lies, and is generally supposed to be occasioned by a bruise ; but as it is scarcely, if ever, seen on any horse but the cart-horse, or some horse used in draught, it seems likelier to arise from hard drawing and tight-reining. It may be observed, when a horse is drawing in the greatest extremity, that it distends that part much, even the very eyes of the horse are projected ; therefore, drivers of teams ought to be cautious in tight-reining horses, and especially such as are coarse made about the head and neck. I am of opinion, that even the heavy bridles which are frequently used may bring on this complaint, by lying heavy, and occasioning the part to sweat much ; and flies pestering horses, by making them toss their heads up and down, may be another cause.

This disease is a sort of swelling, which first makes its appearance on the part described, called the pole ; it is painful and sore, and at length forms a substance, which breaks and discharges a sort of matter. Some farriers make a practice of cutting this swelling ; but I have reason to think that proceeding wrongly for, when the disorder is first seen, if it were treated as other

bruises are, it might be cured with much ease and no danger.

While I lived at Doncaster, I had a horse in my team affected with the pole-evil, when a farrier was recommended to me as being famous for the cure of this disease: his remedy was cutting; I did not choose to have that done, so I became my own farrier. I accordingly made a poultice, of wheat bran and chamberlie, simmered slowly together over the fire, and applied it rather warm, letting it remain on twelve hours: two of these poultices effected a cure. This horse was afterwards used three or four years in the team, without having any return of the disorder; but I had a bridle formed with two straps, to prevent its weight lying on the part. I would, therefore, recommend, as I always prefer prevention before cure, when horses are coarse-made and full in the pole, to have the bridles lighter, and so formed as that no weight may rest on the part; for it plainly appears that this disorder is occasioned either by the heavy bridles or tight-reining, or both, as it never happens to hunters or road-horses.

Wolf-teeth.—These teeth are found in the upper jaw, generally at the age of three years, when the horse may be seen to be doing ill: by opening the mouth of the horse at that time, and looking near to his grinders, a tooth on each side will be observed; they are a sort of tusk, and are said to affect the eyes, but of that I am not certain: however, they prove troublesome to the animal in eating, and hurt him in such a way as to prevent him from masticating his food properly, consequently are better taken out. The operation is thus performed:—take a piece of inch or three-quarters bar-iron, eighteen inches long, with a nick in one end, to grasp the tooth; put the hollow part of the iron against the tooth, and strike the other end with a hammer until

the tooth be removed. There is neither danger nor art in this operation, those teeth not being very fast in the gums.

Roarer.—This disorder is hereditary, and is known by the horse, when first mounted, or any weight is laid upon him, making a grunting noise; or if you spur him, to force him out of a foot-pace, he will make the same kind of noise. I had a horse of this description; he was a most excellent walker, and while walking carried me very well, but seemed unwilling to quit that pace, and kept continually declining in flesh: at that time I was unacquainted with the disorder; but when I offered him for sale, the horse-dealers soon informed me. This horse made a noise when I rode him, by drawing his breath in an unpleasant manner, which I termed thick-winded. There is great danger if a horse of this kind be forced in his pace, as he will frequently drop down with the disorder. He will eat his food with seeming avidity, and as much as any other horse; but it does not seem to do him any good, as he cannot stand much work.

This disease is equally as bad as the glanders, though not contagious. It may be known by pinching the animal's throat near his jaws, at the same time striking him across the loins, which causes him to roar out in the same manner as when he is forced in his gallop, and to throw out a sort of matter at his nostrils. The complaint is said to be in the kidneys; which seems probable, from the symptom produced by the stroke across the loins: it appears that the lungs are also affected, as the wind is so bad. There is no cure, though the horse will live long, and eat much food; but he will do scarcely any work, and therefore is worth little more than for dogs.

Ring-bone.—This disease is likewise hereditary: it appears above the hoof, on the fetlock, but, if taken in time, is easily cured by a blister, which I have got made

up at the druggist's, composed of Spanish flies, &c. When I lived in Ireland, at one of the public meetings of the Farming Society, there was a man from England, hired to read lectures on the different disorders and lamenesses incident to horses; he had with him the dissection of a horse's foot, and the bones of the fetlock, which clearly shewed the nature of this disease, and its origin. At the first attack, the horse is perceived to be lame, but nothing further is discoverable at that time, the complaint being internal; and some time elapses before it appears externally, previously to which the blister ought to be applied. The lameness is at first caused by a small particle of jelly, not larger than a pea, lodged in the fetlock joint, next to the hoof; this keeps increasing in size, until it forces out between the skin and bone, when it has assumed the appearance of a sort of soft sinew: it continues growing, and the substance at length hardens into a kind of porous bone, which gives the horse continual torment, and the foot becomes useless. Thus the necessity of an early application is evident. Some farriers fire for this lameness, and I believe cures have been made by the proceeding; which I wonder at, as it never appeared to me that firing could have much other effect than making the skin tighter round the part; but I decidedly prefer the blister. Firing is performed by drawing a red-hot iron very lightly across the skin, on the aggrieved part; after which the blistering is sometimes applied. The firing causes an unsightly blemish; and when blistered likewise, much worse: the blistering alone, if properly done, leaves no perceptible mark. If the blister be applied at the time the ring-bone is in embryo, only a small portion of jelly, it obviously will be more likely to effect a cure than when it is become bone; therefore, great care ought to be taken to apply the blister as soon

as the lameness is discovered : if there be no other signs, by pinching the part it may be perceived. I have had several horses affected with this disease, and they were all cured but one by the blister. Farriers are apt to use oils, instead of blister, for this lameness, and sometimes for a strain ; but all this is very wrong. It may be remarked that the ring-bone is a long time forming, somewhat similar to warts on the hand ; therefore, if caustics are applied in time, they will stop its progress and deaden the part ; when, if followed up with blisters, they will totally destroy it.

After seeing the dissection of the horse's foot, I had an opportunity, when I lived at Slane, of trying the effect of a blister in the early stage of the ring-bone.—I had a valuable young mare very lame, though with no external appearance ; but, by pinching the part, I found she flinched. (Now, the farriers acted improperly with all my former horses, by applying oils, supposing the lameness to be a strain ; while the ring-bone was increasing—the thin jelly forming into sinew or bone : for they never thought of applying the blister until there was an external appearance.) I had recourse to the blister immediately, which in a few days eased the pain, and in a little time she recovered, on grass land : from that I took her into use. But I found, in drawing, she stepped short, on hard ground, with the diseased foot ; I therefore applied a second blister, and gave her a fortnight's rest : after which I took her to work again, when she proved perfectly sound, and never again had the least symptom of lameness, or the smallest appearance of a blemish. It may be necessary to observe, that the blister need not be so strong a caustic when used in this early stage, as when the disease has formed itself into bone ; neither is there so great a likelihood of blemish, nor is it so difficult to make a cure of the lameness.

I have known farriers make use of the hot-iron, and then apply the blister; and after all the horse has been left lame: when the firing and blistering have effected a cure, an unsightly blemish was left, so as to greatly reduce the horse's value: and all this arose from want of a more early application. Therefore, I highly recommend a blister whenever a horse proves lame, and, there being no external appearance, it cannot be discovered to a certainly where the lameness lies;—which was the case with this mare above mentioned. When I applied the blister, I was not certain the ring-bone was the occasion; but finding that the lameness was in one of the lower joints (from a certain rule before given), I had the foot examined, when nothing could be found amiss there—a proper precaution, in all lamenesses that are low down, to examine the foot first: however, I thought I could perceive a heat in the coffin joint, accordingly the farrier wanted to apply oils as for a strain. This I would not suffer to be done: but knowing a blister even in that case could do no harm (indeed I rather apprehended, should that prove to be the lameness, it might be beneficial), I determined to have recourse to it. My method of application was thus:—first clip off all the hair round the joint as closely as possible (which is not usually done by farriers); then take some warm soft water and sope, wash off all the dirt and scurf, and cover the part with a very strong lather; after which, with a sharp razor, shave off the hair as perfectly as you can, but by no means draw blood, which might occasion a scar. (By the application of the blister entirely round, when the hair was clean shaved off, I could discover on my mare's foot a very small lump, not larger than the half of a hazle-nut shell.) When shaved, let the part, and all round the fetlock, be quite dry before the blister is applied. For the purpose of putting on the

blister, take a chafing-dish, containing some burning charcoal, into the stable; heat an old case-knife, and spread the blister on with it—not hot, but warm, so that it spreads freely and is equal in every part; lay it on as thick as you can, without its running off: that done, make a fire-shovel, or some broad piece of iron, hot, and hold it at a distance from the part—not so as to burn the skin, but to warm the blister; this will cause a sort of tenderness in the skin, and the blister will be the more certain of having the desired effect. Then tie the horse up to the rack (not to the manger), as great care must be taken that he do not get his mouth to the blister; for when it begins to lay hold, it will prickle and smart, and will cause him to endeavour to bite it, which would not only remove the application, but blister his lips and nose. There must not be any litter under the horse, nothing but the bare stones; as the smart will be apt to make him stamp about, and paw the floor, so as to raise dust and dirt, which would be liable to mix with the blister and the matter it draws out of the joint, and absolutely, in some degree, prevent the application operating as it ought. He must stand tied up in this manner for at least forty-eight hours, or sometimes longer, without being moved during the time, having his water carried to him: he should then be turned into a clean pasture, where there is not much dirt in getting to the water. In about fourteen days the hair will be grown, so that the blister and the matter formed with it may be clipped off, and another blister put on in the same manner as before.—If the horse appear ever so sound after the first blister, I would recommend a repetition, to make sure of killing the humour.

Bone-sparin.—This lameness proceeds from a small substance which arises on the inside of the carpal joint, sometimes called a *jack*, and is hereditary: the cause is

very similar to that of the ring-bone, it certainly being, in the first stage, a kind of jelly, formed in the joint. It increases gradually to the size of half a large walnut, or even to a greater size. The horse will sometimes become lame long before there is any external appearance; but when made hot with exercise will go sound, though very stiff and lame when cool: there are some rare instances of horses having this sort of blemish, and yet very little lame. The disease may be discovered by the horse carrying his leg as though there were no joint at the part; and if the part be squeezed, he will flinch.

The same application and management in every respect are proper for this lameness as for the ring-bone, excepting that the blister has not been put round the joint; though I do not think that proceeding would be wrong, as I am clearly of opinion the substance arises from jelly in the joint: an application all round, therefore, may not only relieve the diseased part sooner, but more effectually; and, if care be taken in putting on the blister, there is not the least danger of a blemish. The sooner this blister is applied the better, as for the ring-bone, and it should be repeated; but, the skin in this part of the horse's leg being much thinner than where the ring-bone fixes, so strong a blister may not be required. I have always employed the druggists to mix up the blisters, as they both know the strength of their drugs, and how to mix them together, much better than common farriers. By blisters put on by farriers, I have seen deep holes eaten on one part, with little or no effect on another, for want of the drugs being properly incorporated. Farriers very commonly fire for this spavin; but, since I have been informed how it is produced, I am convinced that the blister is most proper: though I have known more bone-spavins cured by firing than ring-bones, probably from the skin

being thinner in that part, suffering the hot iron to get nearer to the part aggrieved—jelly, sinew, or bone.

Curb.—This is a substance found on the hind part of the camiril joint, and sometimes causes the horse to be lame, at others not: the part where it fixes appears broader, even when first foaled, than it ought to be, or even than in horses that have not this blemish. It requires an early application of the blister, which should be repeated; and is very easily cured, if taken in time. Rest ought always to be given to horses under the operation of a blister, as it weakens the part; indeed, the horse should not only rest while the blister is performing the cure, but, if he can be spared, it is advisable not to give the horse any severe exercise for a month or six weeks after the last blister is applied.

Thorough-pin.—The thorough-pin is a substance found in the hollow part of the camiril, where the butchers put what they call the beast-tree, to hang up cattle in slaughter-houses—between the large sinew and the lower part of the thigh bone. It is a sort of pin, as it seems to be in one piece, shewing a substance on each side; and frequently happens to horses that are very straight in the hind leg, or so made as to appear loose and weak in that part, causing the horse at times to be lame. The cure for this blemish is a very strong blister, the skin being thicker on the part affected than on any other, and requires early application; at all events, the blister must be repeated.—In all other respects it should be treated as the ring-bone.

Blood-spavin.—This disease is found on the fore side of the camiril, in a hollow part, where there is a large vein, leading down from the inside of the thigh, which by some means fills: it seems a sort of weakness in the veins, and, being painful, causes the horses to be lame. Some persons fire for this disease, which I think very

improper; others blister, which I think also improper. The best method of cure is, to take up the vein, which is thus performed:—having cast the horse, fasten his feet so that he cannot make any resistance; that done, about an inch above the spavin, with a lancet, cut the skin opposite to the vein that leads down to the spavin, and move the skin to each side; then put a needle, a little bended, having a piece of strong sewing silk in the eye, under the vein, draw the silk through, and tie it round the vein so as to stop the circulation: this, in a general way, will effect a cure. The skin that has been opened, to take up or tie the vein, must be sewed up with a fine needle and silk, to prevent the air from getting in. By this operation, which is very simple, only requiring a little nicety in performing it, I have known many spavined horses effectually cured.

Gravel.—This is a disease in the bladder and kidneys, said to be occasioned by the collecting or gathering together of a sandy or gritty matter, which cohering, becomes a stony mass, and prevents a due secretion and excretion of the urine. Some consider it the same distemper as the stone, only in an inferior degree. The symptoms by which it is known are, the horse will be suddenly seized, even if in a gallop, as if his joints were all set, especially his hind parts; in fact, he will appear to be affected with general lameness, and those who never saw a horse so taken, would think it must occasion present death: but I never observed any danger of that kind; a horse will always, with patience, get through it. I saw an instance of a horse that was seized with the gravel, and an ignorant farrier, thinking the horse broken-backed, applied water and wet cloths for some days—which I should have thought would have been fatal, as horses so treated tremble very much, and will not eat;—but the horse, nevertheless, in about a

week, got the better of the disorder, in spite of the farrier's blunder.

The cure for this disease is very easy, quick, and simple, by means of what are termed diuretic balls.—Take one ounce and a quarter of Venice turpentine, one ounce and a quarter of salt prunella, one ounce and a quarter of flower of brimstone, with a small quantity of honey; mix them into two balls, and give them as a dose. This medicine is administered to horses having swelled legs in the stable, and at times has a very good effect: but I never knew it miss curing the gravel.

Gravel, in the feet.—This is a lameness, generally occasioned by the smith driven a nail into the quick, or near, so as to press against it. Sometimes it is occasioned by a bruise, and at others by something running into the foot, such as the nail of a chaise, of a cart wheel, &c. in travelling on the road. I once experienced an accident of this kind as I was riding on the turnpike road: my mare struck a nail into her hind foot, when she made a curtesy behind, and uttered a sort of cry. I jumped off, and thought she was going to drop down; but, as I led her on, she seemed to ail nothing. When I remounted, she curtsied, and cried out again; and I then perceived there was a nail in the foot behind. Considering that every time she stepped it would be forced in farther, and a stage-coach approaching, I stopped, and when it came up I requested the coachman to pull the nail out, which he did, though with much difficulty, and the blood sprung out very freely. Seeing a public-house at about two hundred yards from me, I went to it, and asked for some spirits of turpentine; as they had none, having made the fire-poker red-hot, I got some rum, poured it into the foot, set it on fire, and burnt it in. I had about five miles to ride; she went very well home, when I washed out the foot with cham-

berlie, got some spirits of turpentine, and burnt that in in the same manner as I had done the rum: the foot was by this proceeding made sound, not shewing the least lameness afterwards. It is said by the post-boys to be the readiest and best remedy for this misfortune, to make the nail red-hot and return it into the same hole, which, by searing the part, causes an immediate cure. I knew an eminent farrier apply what he termed a salt-poultice to a mare of the post-master's in Doncaster; the part mortified, and killed her:—the salt-poultice used was nothing more than a quantity of common salt put in the sole of the foot, and confined there. I mention this merely to shew the danger of applying any thing cold to the flesh of a horse, as horse-flesh will neither scald nor burn. I saw an instance of a horse tearing his shoulder about half off from his body—at least twelve inches upwards, and eighteen inches sidewise—the ribs being quite exposed: this horse was cast, held on his back, and boiling hot tar and salt poured plentifully on the wound, which prevented gangrene; no mortification ensued; and the repetition of the boiling tar and salt once a day made a perfect cure in a short time: but as the gash was open, to give vent to the matter, the case was not so dangerous. At all times, for wounds, bruises, &c. any remedy or medicine may be applied to the flesh of a horse boiling-hot; it is half, or more, of the cure: if the tar and salt in the case above mentioned had been put on cold, or even warm, it would have had no such effect; nor would the rum to the mare's foot have been of any service. When an accident happens to a horse, by being horned by cattle, or otherwise, if the matter have not vent from the wound, and there be flesh, so that it can be widened downwards, to give course to the pus, &c. it should be done, as an orifice is better for being wide: even a broad fleam to bleed horses with is

much preferable to a narrow one, as there is less danger of swelling; for all wounds will matter a little, and the freer the discharge the more certain the cure. So far this applies to the gravel in the foot, or being what is generally termed 'pricked'; if there be vent given to the matter, it will in most cases cure itself: but what is called a patten shoe, viz. an iron shoe made to cover the sole of the foot, is commonly required, to prevent dirt from getting to the wound; a little hot tar, with some tow to keep it to the part, which also steadies the shoe, being previously applied. If the injury have been neglected, the matter will keep working upwards, until it make its appearance at the top of the hoof, in which case, British oil is one of the best remedies: but if it be discovered before that time, and there be a large wound in the foot, burning some spirits, of almost any kind, is the most effectual remedy: I prefer the spirits of turpentine.

Treads on the top of the hoof, commonly called the coronet.—This misfortune, though it seems trifling at first, is of very dangerous consequence; frequently turning to what are termed *twitters*, which pipe, and keep increasing, until I have known the foot come off, or, at other times, the horse rendered lame for life. When treads have been neglected, the most burning caustics are applied to eat off the bad flesh, and the cure is very difficult, of which there is no hope so long as the smallest portion of carious tumour remains. I once knew a very good cure made of a horse's foot that had been improperly treated, by cutting all the bad flesh clean off with a sharp knife, and afterwards applying healing remedies to it: this, indeed, seems to me to be the best method, as it must be removed. However, this arises from mere neglect, after bad farriery; as the tread is originally a wound or bruise of a very slight

nature; but it is made in such a way that the matter, having no vent, settles deeper and deeper between the hoof and the flesh: and it is a custom with farriers to apply caustics at the first, which is materially wrong, as that proceeding is only adding fuel to the fire. The discharge from the wound is like water, of a very hot nature, and quickly penetrates to a great depth, causing the production of bad flesh; this, by cutting away the hoof, is permitted to rise above the part remaining, and being very tender is liable to get bruised.

The cure, or prevention, of this lameness, is simple and easy.—Take chamberlie and wheat bran, boil them together to the consistence of a poultice, and put it on hot; this will remove the bruise, which is the cause of the whole mischief. When the bruise is taken out, the wound will heal of itself. If hot oils are applied at first, they irritate the sore wound, and make it more hot and angry. Two applications of the poultice, or at most three, according to the nature of the bruise, kept on twelve hours each, if used immediately after the accident happens, will set all to rights. Other poultices will answer, such as white bread and milk, &c. but they are not so good, as every thing tending to be greasy encourages putrefaction, and is, therefore, wrong, especially in this case, in which there ought to be nothing applied either drawing or heating, the bruise only being required to be taken out, and the blood caused to circulate in its natural course: even if this poultice were kept on too long, it might bring on an excess of humour; for the part aggrieved being so very low down, all the humours in the horse's body are readily drawn to it.

Nicking the horse's tail.—This operation is performed by cutting the sinews or ligaments, that is, the gristly part, lying on each side the tail, under the hair: in this there is no danger, or difficulty, but in avoiding the

vein situated in the middle of the tail, which part should be cut only skin-deep : though cutting the vein is not so dangerous as troublesome, to stop the blood. If the knife be suffered to touch the bone, or if the nick be cut in the joints, there is danger ; as by so doing the tail may happen to come off in the process of drawing up by the pulley : therefore, the nicks ought to be made in the parts between the joints, and only skin-deep in the middle ; but where the tendons are, on each side, the orifice may be made deep enough for the sinews to bolt out. Some persons cut those portions of the sinews off, as the tail is sooner healed when they are removed ; but they seem to form a sort of prop, or wedge, when left on, which may make the horse cock his tail higher. Some care is required, after the first cutting, until the tail matters properly ; therefore it is advisable to give warm water, and to be careful of cold in the stable. It is the best plan to put the tail in the pulley as soon as nicked, when there is less soreness than the day following ; and to use but a light weight at that time, about half a brick, adding more weight as the tail gets stronger : a very great weight is apt to pull off the hair, and bring a humour into the tail. During the time, it is a good way to give the horse such food, &c. as will keep his body open.

This operation used to be performed by casting the horse, or throwing him down ; but it is now more generally done by fastening leather fetters round his hind legs, to prevent him from kicking, which is the better way, as the tail at times, when nicked lying, got lapped up crooked. It is very common to fill the wounds with tow, spread with horse-turpentine : some persons apply salt, others British oil : I prefer the horse-turpentine. Some linen rag is either sewed or tied round very tight, to keep the tow in the nicks, and also to prevent the bleeding ; but it is necessary in twenty-four hours after

nicking to slacken the bandage, or it may cause the parts to swell.

Cropping the ears.—This operation is best performed with an engine, of the shape the ear is wished to be cut. In cropping horses, the ears are seldom cut near enough to the head on the fore part, which makes them look unsightly — clumsy and awkward, by being made shorter and narrower at the top, and left of the full substance at the bottom. A simple method of performing this operation is, to fix two slit sticks on each ear, see that they are both placed alike, and then cut the ears off with a sharp knife.

Strutting, or docking, is variously performed. Some persons, having found a joint, cut the tail off with a strong sharp knife; others, first placing a piece of timber of a proper length under the tail, hold an ax upon it, and strike the ax with a mallet: but the latter method has been attended with inconveniences, for if the horse move his tail, it may be cut improperly. The best mode of performing the operation is with a pair of shears, the cutting part being rounded, to grasp the tail, and made very sharp; having handles twelve inches long, to give sufficient power to the operator to enable him to amputate the tail at once. It is common to sear the part with a hot iron, made for the purpose, having a sort of ring at the end to encompass the bone. If the tail be held up while cutting, the tendons will be left longer underneath; and by burning some rosin on the part, the tail being kept in the same position, the horse will frequently carry his tail almost as if he had been nicked.—Some fine hair, or down, put at the end, lapped up with a substance of horse-dung, and covered with a linen cloth, will stop the bleeding without searing.

CHAPTER IV.

M U L E.

Description, Breed, and Use.

THIS animal is a free-martin;—sire a jack-ass, the dam a mare. In shape, it is thick about the head; with long ears; straight, upright shoulders; and short neck: long in the back; short in the rump; flat in the ribs; deep in the belly; with good short legs, and small and hard feet: of about twelve hands high in general, some larger; in colour, and in the mane and tail having little hair, resembling the ass: indeed, the mule varies very little from that animal, but in possessing more power. If it have a perfection, it is in being hardy, living on worse and less food than the horse, and in slow, light work, is thought to be more valuable. It has been the opinion of many men who have visited foreign countries, and seen the mule in use there, that it would be more profitable to the farmer in England than the horse; but I think differently, for many reasons. The surplus of the common kind of horses now generally used by the farmers is applied to the service of the army—artillery-carriages, horse soldiers, &c. for which purposes the mule would be very inadequate; the king's troops would cut a poor figure mounted on mules! Horses, in general, are more active for the use of soldiers; and if they are for soldiers, they are also for farmers: I think it must be a very mean horse that will not pay the farmer more for breeding than a mule. In America, there are

many mules in use; and General Ridgley employs a very large number of them, probably a hundred.—I was at breakfast with him one morning, when a man came to the house, and offered to sell the general six mules and his waggon: the general stepped to the door, and readily bought the whole. A gentleman, who was at breakfast with us, observed, as the general used so great a number of mules, he wondered he did not breed them. To which the general quickly replied, it would be strange if he did, as he could breed one horse that would sell for as much as would purchase a whole team of mules.....This anecdote seems to prove that even in America they are not considered profitable, and that they are mostly used through necessity: indeed I know that to be the case there. They are more hardy, and better able to bear the cruel treatment of the negroes; not so irritable, when beaten by them, in their cruel, unmerciful manner. Again, grass is scarce in that country, in fact there is little or none in many places; but the mule, which so much resembles the ass, prefers many sorts of weeds, hedges, or buds of trees, with which America abounds. Then the work in that country differs greatly from the labour in England: their land is so light, and thin of soil, that very little power is required to till it. Add to which, the mule will bear the extremes of heat and cold much better than the horse, of any description: there is no horse from England that can support the heat properly but the race-horse. All the ploughing in America is done during summer, and mostly when the crop is on the ground; what with the Indian corn and stumps of trees, it is like ploughing in woods or plantations: for this purpose the mule, being smaller, and consequently not so liable to injure the corn, is better suited than the horse; and by passing more readily

between the stumps of trees, much hand labour by the hoe is saved.

I must confess, in this country, I cannot see the least prospect of advantage to the breeder, or to the public, in the propagation of mules; at any rate, farmers, to render them profitable, must have two distinct breeds—one to ride, the other to draw. To breed a large mule for labour, would require a full-sized draught mare, and the largest ass; as in drawing, it is one weight opposed to another; then, if one dray-horse be as heavy as four asses, he will draw as great weight. The offspring of a mare by an ass partakes nine parts out of ten of the sire; consequently, the mule so nearly resembles an ass in shape, disposition, &c. as to be of little more value. Therefore, it requires very little consideration to shew the fallacy of breeding mules for profit; since, in so doing, the breeder produces an ass instead of a horse, and one good horse would buy a fieldful of asses. Then, to breed a mule to ride, a mare of action and the most nimble ass would be required: the offspring of this breed may be of more real value than the other kind of mule, as probably a mule so bred would, in any long given time, carry as great a weight as many of the better kind of horses: but there is something required further than use;—a man mounted on a mule, if ever so respectable a character, would make an awkward appearance on entering into a town or city. I am further of opinion, that were a small farming mare, imperfect in herself, put to an ass, the offspring would be of little more value than the sire; and were the best dray-mare put to an ass, the produce would not be worth more than one third of her offspring by a good dray-stallion; a road-mare, about the same; a hunting-mare, it would lessen the value of her offspring in equal proportion according to the goodness

of the dam ; and a race-mare, of the best kind, it would often reduce the value of her offspring to less than one seventh. Thus, from every comparison I can draw, it would be a very poor speculation to breed mules. In fact, I cannot perceive they would be of any public utility ; nor that they would suit any purpose so well as for pedlers and gipseys : and the only reason they answer best for those itinerants is, they will bear greater hardships than the horse, living, and even thriving, on weeds and young shoots ;—in short, they will exist, as their owners do, by pilfering.

The best mules I ever saw belonged to General Washington, in America ; many of them were about fifteen hands high : but the general had the sire from Spain ; it was of very large size, I have heard say sixteen hands high. The mule is certainly a very useful animal in America, not only by bearing the extremes of weather, but, there being a very long vacation, from the latter end of December till the end of April or the beginning of May, during which neither plough nor harrow can be used, he may be kept much cheaper than a horse ; and the general's saving must have been very great, as he tilled 3000 acres : supposing every mule to till twenty-five acres, he must have had 120 mules. But, notwithstanding they were the best stock of mules I ever saw in one man's possession, it proved a very bad speculation : for after the general's death, he having left an order in his will that all his stock should be disposed of within a certain time after his decease, a public sale was made by auction, at which not a single mule was sold. Now, had the general paid as much attention to the breeding of horses as he did to mules (for he was a very good keeper), I have not the least doubt but every horse would have found a purchaser : and I am fully persuaded that General Ridgley, who breeds the best of blood horses

from the imported mares and stallions from England, could have sold twenty of his stud for more money than the 120 mules were worth.

It will be observed throughout the whole of this work, I have constantly endeavoured to substantiate the great necessity, in rearing all animals, for the breeders to be very circumspect in the choice of the male; and never, on any account, to make use of one of less value than the female, or than he requires the offspring to be. Although General Washington's Spanish ass was very superior to all others introduced into America, it was not the sort of animal the general would have chosen to ride at the head of the army; and why not rather breed the animal that will answer fully as well in a mean situation, and be ready when occasion requires to occupy a higher office, than breed an animal that is only fit for drudgery? Those mules of General Washington's certainly cost much less to raise them separately, one for one, than General Ridgley's blood-horses; but, notwithstanding, they did not pay so well for the food they consumed as the horses.

It is generally allowed, that a mare which will not stand her stinting by a stallion, will if covered by a jack-ass; therefore, when that happens, it may sometimes be necessary to breed a mule; as after a mare has had a mule foal, she has bred again in a regular manner.

Mules do not, as before indicated, breed in this country.—Cattle also often produce what is termed a free-martin; which is, if a cow have two calves at the same time, one a bull, the other a heifer, and the heifer-calf come first, that will be a free-martin, and not breed; but, on the contrary, if it come last, it will be a perfect animal.—See Mr. John Hunter's "*Observations on the Animal Economy*," PHIL. TRAN. 1779, vol. lxi.

CHAPTER V.

ASS, or DONKEY.

Description, Use, &c.

THE make of this animal is so exactly similar to that of the mule, fully described in the last chapter, that it is needless to say more on the subject. It is of a mouse colour, though some are darker than others; and they all have a black list down the back, and generally across the shoulders.

It was the opinion of Mr. Bakewell, and some of his followers, that the ass would be worth propagating, for its hardiness, and living on less and meaner food than the horse; and several attempts have in consequence been made. The fairest trial that has come under my observation, was that of a farmer in Dorsetshire, whose account is, that six asses will plough as much land, any soil, in a given time, as three horses, and four asses will plough as much light, broken land, as three horses (meaning in sowing barley during the spring, or turnips in the summer). Another farmer has used them for carrying turnips off the land in winter: but both these farmers have given them up; they are so very liable to wander, and be to seek, and extremely destructive to fences, the white-thorn particularly. But it should be observed, that where the three horses are mentioned it is the custom to plough with that number, though it is plain two would do the work; for any man may convince himself, that two moderate horses would, with very

great ease, draw four asses back; hence it will require six asses, on the average, to do the work of two good horses: therefore, I conclude them improper for all farming purposes, except one for the boy to go to market and on errands. But these animals have now got introduced to the service of ladies of fashion—a much better and more proper employment, if the ladies like them, as there is less danger of accidents from falling off, or for children when learning to ride. I think them much more suitable for the use of ladies, than for the ploughman: therefore, since the former have honoured the ass with their attention, I will do myself the pleasure to describe the form of the ass, and the sort, best calculated for the ladies' purpose.—The most nimble and active ass is, in general, of a dark colour, rather black; in form more delicate and complete; with smaller limbs, more and better action, is less in the head, has finer muscle, a more prominent eye, and a cheerful look: the ears should be thin, but long, and upright, standing near to each other; the nostrils large and extended; the neck, rising out of the shoulders with an easy, tapering curve, must join gracefully, the shoulder being as much thrown back as the form of an ass will admit; what are called the points, the arms or fore thighs, should be muscular, and tapering from the shoulder, met with a fine, straight sinew; the legs straight, and short-jointed, particularly the tibia and the pasterns; the hoof round, and expanded at the heel; chest full at the girth; fillets broad and straight; body round; hucks standing in, so as not to appear farther out than the ribs; the tail in a right line with the back; hind thigh strong; legs clean and fine boned; and having a quick, light, nimble movement, the hind leg following the fore one in a direct line.

In raising the ass, from the time he is a foal till two or three years old, the hoofs are liable to get much out of

order, long at the toe and curled, so that he has not any sole to tread on; it would, therefore, be of much advantage to the feet, to pare and rasp them, by way of keeping them in proper shape.

To break a young ass for ladies' riding, as these animals are apt to be very stubborn and restive, take an ass, of a willing disposition, that is well broke, and riding upon the latter, lead the young ass, with a bridle and saddle on it; then, after you have thus got the young ass to run readily, let some boy mount it, and ride by the side of the man or boy on the old ass. By these easy, passive measures, the ass will be kept more pleasant in temper; for the ass, like many other animals, is frequently rendered stubborn by too hasty treatment at first.

There is another sort of ass, generally of a lighter colour, with larger bones, and of a clumsier make, more suited to carry burthens; it is not at all fit for ladies. But the colour of an ass is no certain criterion; for there are some black asses large and clumsy, and others of a light colour that are nimble and active: nevertheless, I think the dark or black ass is much more frequently of the latter description.

Asses' milk is recommended in all declines of constitution, particularly in consumptions: for this purpose, in the vicinity of London, the charge for an ass, if let out by time, is one guinea for the first month; and the hirer may keep her as long afterwards as he likes, for the use of her milk, paying one guinea more.—This seems a valuable and profitable application of the ass.

CHAPTER VI.

H O G S.

The most valuable Kinds, with the best Methods of Breeding and Rearing.

Hogs are most extraordinary animals; but, though in many respects rather disagreeable, they are of very considerable importance to the community at large, and to farmers in particular. There is no other animal affords so much human sustenance in flesh, in proportion to the time in which it is raised: and in no instance has Nature shewn her economy more than in this race, their stomachs seeming to be intended as a receptacle for many things that other creatures refuse, and which, but for them, would be entirely wasted; for they industriously gather up, and greedily devour, what would otherwise be trodden under foot—the refuse of the fields, the gardens, the barns, and the scullery.

SECTION I.

The Boar.

IN describing the boar, I mean to give the form, and every good property, a hog ought to possess. Beginning at the head—The mouth should be small; the snout, or nose end, fine; the fore part of the face, from the nose to the crown, rather short, thin, and straight; the eye quick, and shining like that of a ferret; the ears short

and thin, sharp at the end, turning up, standing near together, and put forwards, so as nearly to meet at the ends; the crown, or forehead, should be narrow, and the cheeks full; the upper part of the neck very full, so as, when fat, to be nearly as broad at the top as the shoulders and back, viz. from the ears to the shoulders, that part where the head is cut off, being nearly as much round as the body: the shoulders should be very broad above, and continue of that regular breadth all along the back to the tail; the tail should stand low down; the back, from the neck to the part above where the tail is set on, should be straight, and the tail fixed in such a manner as for the upper part of it to be invisible when fat; the ribs well extended, and rather rounding, but not required to be so much so as some other animals; from the part where the tail stands, down to the cameril, between the thighs, what is called the twist, should be very much cloven; the thighs very thick, both inside and out; the belly part, when fat, should nearly touch the ground, from the hind legs to the fore, and continuing to the chops; the shoulders should be well extended, so as to form a complete, deep, round side, from head to tail; the tail small and short, with little hair; the bone of the legs rather small in proportion to the size; the leg, from the cameril to the ground, short; the fore leg the same; the hoofs short and round, to tread very straight on all the legs; the hair long, fine, and thin, having few bristles, or if none the better;—if the hair shed along the back, like a long-wooled sheep, it is a recommendation: and the skin, or rind, should be thin, without any being loose or superfluons.

SECTION II.

Explanation, and Reasons given for the perfect Make of a Hog.

THE mouth being small, will prevent its taking in much food at once, and the animal is therefore more likely to masticate it properly: a fine snout indicates fine symmetry in other parts; the crown being formed narrow, with a quick eye, looking smart, is almost a certain indication of quick aptitude to fatten; the ears short and sharp, hair long and thin, without bristles—if a pig have these properties, let the other shapes be what they may, he is sure to be a good feeder. A hog that has short, mossy hair, thickly set, generally has a thick, coarse skin, loose and wrinkled, which is one of the worst faults a pig can possess. There is very little waste or offal about hogs; therefore, a large, long ear, hanging down on each side of the head, with long, large legs, &c. would not be so great a fault in them as in other animals, if they were not a certain indication of hard thrivers, and that will on a certainty cost more feeding than they are worth. I have remarked that the upper part of the neck should be thick, which is one of the very best properties in regard to being well covered with flesh, and that of a good quality; for when a hog in a store state is thick on the upper part of the neck, that sort of flesh, which is lean, or rather in a fattening state, is sure to continue all along the back, on both sides the chine, inside and out, making very heavy griskins, and prime roasting parts, when killed as pork pigs; and if kept to the age of bacon hogs, that sort of flesh naturally descends to the shoulders, and along the fat parts of the sides, producing in the bacon flitches agreeable layers of lean in every part; and by being so mixed or layered, the fat will be rendered more firm, not so soft and greasy. Hogs that

are not so properly made are, some of them, all fat, and, in every stage, either as pork or bacon, they have no more flavour than so much hog's-lard. Lean is generally wanted in a pig; but, although there is commonly more fat on a hog than is wanted, the lean of hogs is scarcely eatable until they are made fat; therefore it is a very great perfection in hogs to have plenty of flesh of an agreeable kind.

Hogs such as I have described are the most proper, but they do not suit the London distillers, nor many situations where there is not plenty of litter; nor do I know that they answer in dairies so well as some others: they do not seem to be appropriated to summer fattening. They are so remarkably round made in their sides, that when fat they lie on their belly; by so doing, the heat of the weather, with that of their own flesh, and their weight together, so much relax their sinews, and cramp their legs in such a way, that they are unable to stand unsupported in the hot sties, especially during the summer: this lameness has generally been said to be in their feet, but I believe it to be in their legs. Now, some of those very long-eared, flat-sided hogs, it may be seen, lie on their sides, which is the reason they stand the sties better in summer, and all hot, hard situations.

I was led more particularly to remark this property in the remarkably fat pig I had at Doncaster; which, when it was killed, and laid on flat, level ground, was found to roll of itself upon its belly: it always lay on its belly while living; and I suppose, from that circumstance, hogs of that round-sided make, when fat, cannot lie on their sides to be easy.

For the reasons here given, the London distillers, &c. choose the long-eared, flat-sided hog, with much thick hair, in preference to the sort of pig above described

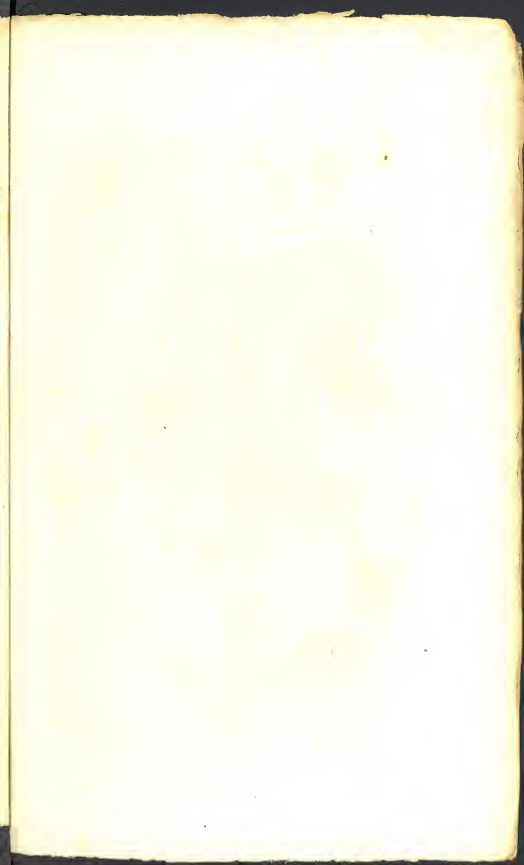
although the former takes double the quantity of food to feed him : but the long, coarse hair, and thick skin, when lying on his flat sides upon the bricks or stones, preserve him from becoming sore and lame, and enable him to bear the sty until ready for bacon ; as hogs will not stand distillers' keep until they are one year old, and they must be about one year in the sty. The breeder should, therefore, consider what market his hogs are intended for, as even the best sort of pigs do not suit all purposes.

SECTION III.

Different Breeds of Hogs.

HOGS are of various kinds, therefore the choice of the sort should be regulated by the treatment they are to receive. I shall proceed to describe the several species that have fallen under my observation.

The *Berkshire* pigs are distinguishable by their colour and shape. Their colour is a spotted white ; and some are sandy, with small black spots regularly all over them : a few are entirely sandy. The hair is long, and thinly set, but much curled, looking very rough ; and the real true breed feather-eared—having long hair growing round the outward edge, which looks rather unseemly, but is found not to be an imperfection. The hair indicates a coarseness, as if their skins were thick, but they are quite the reverse ; the best sort, although very large, being remarkably thin in the rind, and equally fine in their flesh : they are, with very few, if any, exceptions, better known by their hair than by any other appearance ; and the best of these pigs have no bristles ; indeed, so remarkable are they in that respect, that those I took into America received the name of Parkinson's no-bristle pigs. The Americans were so partial to this breed that I sold



sucking pigs, weighing 30 and 32lb each, when seven or eight weeks old, at 20 dollars a sow, and 25 dollars a boar; I sold a sow pig, at six months old, for 70 dollars, which of their currency is 26*l*. One sow of this kind made 125*l*. some shillings in eleven months; and General Stone offered to lay a hundred guineas that he raised two of the pigs, and produced an increase of 1 lb a day for a whole year: this bet was offered in a public company, and canvassed over, but was not taken, as their perfections had been seen: the weight would have been 28 st. 5lb, which they would have attained with ease. I knew a pig, of the same breed, killed at the age of one year and a quarter, which weighed 41 stone; consequently, the pig's age being 456 days, and the weight 574 lb, the increase for the time was 1 lb 4 oz. 9 drs. a day, and the value, at 9*d*. per pound, 2*l*. 10*s*. 6*d*., or 11½*d*. a day from the time of farrowing till slaughtered.

It may be observed, when I published my first work I had formed an opinion that pigs would not pay for any kind of food to be bought; but I am now thoroughly convinced to the contrary (as I shall fully prove hereafter): my mistake arose from want of a proper knowledge of the different breeds of pigs. When choice is made of even the best kinds, they require very attentive nursing, and good support, while sucking the sow. The sow should be very well kept, in a clean, warm, dry sty, well littered with clean dry straw, changed once a week at least; every place should be made thoroughly clean, even the bottom must be swept, and the trough they are fed in washed daily. The young pigs should be learnt to eat corn as soon as possible; and never suffered to remain with the sow longer than from seven to eight weeks, as after that time sows naturally decline in their milk; when the pigs, being numerous, and got large, require more and very different support from many other young animals: if they

be let remain longer, they will much injure the sow, and do themselves no good, but remain at a stand-still; while the little corn they consume in their early period is amply repaid by their growing to be as large in eight weeks as they would have been in twelve. The sty should be so formed that the young pigs may have a separate place to themselves, as soon as they have learnt to eat corn with the sow; for pigs are of so greedy, devouring a nature, that the sow will soon begin to beat them, and from so doing, will sometimes take a dislike to one or two of the litter, mostly the weakest, in consequence of which they perhaps die, or get so stunted as never to be worth food afterwards. I would continue to allow the sow corn as long as she gave suck, for there is no economy in stinting animals in that state. Thus, by care and good nursing, the young pigs will be fat and strong at the end of eight weeks; the sow in good trim; and she is sure to admit the boar in three or four days after the pigs are taken from her. By this proceeding two litters may be obtained in one year; for, as the sow goes sixteen weeks, and the pigs suck, say seven, allowing one week after they are taken from her, the time will be twenty-four weeks: twice twenty-four is but forty-eight, consequently there are four weeks allowed for delay in farrowing, the sow taking the boar, &c. After the young pigs are taken from the sow, they ought to have skim-milk for at least fourteen days; and I approve of giving corn, unground, as those young pigs masticate it pretty well. I have been partial to giving them meal mixed with the milk, or swill; but I have lately found that materially wrong, as they throw it about, and smear themselves; and if the weather be the least inclined to cold, it starves them: the meal too, when mixed with milk, acts like paste, making the hair stick together, which causes them to be unhealthy, and to have the mange. After the

time mentioned, the pigs will be ten weeks old; if they are then high fed for about six weeks longer, they will live, and even become fat, where a pig of the same breed and age that had been neglected for the sixteen weeks would starve. As to the sow, she will want very little support; for a healthy sow in store condition, breeds much better than a fat sow. The pigs will be kept at a very small expense, and continue growing, till of the age of one year and a half, or two years old. Those pigs are in good condition at all ages: but I do not think any hog is in the highest perfection for bacon until he be turned two years old; as there is not the requisite solidity in the fat and flesh of a young pig when cured for bacon: and if hogs be of a good kind, they will pay well for keep to that age.—The quality of the hog may be known by the touch: if the fat feel soft, and look very white, it is not of a good kind;—the Berkshire are generally the reverse.

When I lived at Slane, in Ireland, we raised many pigs of different kinds: and we had two boars and two sows imported from England, out of Staffordshire, near Tamworth;—those most famous pigs bred at that part are called Berkshire, no doubt in consequence of having derived their origin from that county, or there are spirited breeders in almost every county that have them: they frequently bear the name of Leicestershire, probably from Mr. Astley having been many years celebrated for them. The best I have seen are to be found about Tamworth, bred chiefly from one famous boar, which went by the name of the Tamworth boar. Of those imported pigs from this quarter into Ireland, one sow and boar cost 33*l.* a high speculation in the breed of pigs: in the first litter the sow had but eight; of which I kept a sow and a boar of the best, and sold three boar pigs, at seven weeks old, for

fifteen guineas each, and three sow pigs for twelve guineas each; therefore, if the whole of the litter had been sold, they would have made 113*l.*: and when the boar pig I saved was little more than half a year old, I was bid 30*l.* for him.

From this speculation in pigs, I flatter myself I obtained some information. One of the boars was much the coarsest, with more bone, and somewhat larger in size, straight made, and perfect in shape, but not very extraordinary in aptitude to fatten: the other was very short in his leg, much let down in his haunches, particularly the fore haunch; very long in his sides, and flat above; much the most inclined to fatten; indeed he was the fattest boar I ever saw, but smaller in bone and finer in his countenance, having more the appearance of a cut pig. In the offspring from these two boars there was a very material difference: the coarsest boar was by far the best stock getter, the pigs being much larger, and would attain a greater size, from the same sow, at one year old, than the other's would at a year and a half: there was little difference in aptitude to fatten; but the profit in store pigs was, I think, about one third in favour of the large, coarsest boar, and I have my doubts whether the whole produce would not have maintained an equal advantage had they been tried. This has given me occasion to recollect some other male animals of different species; and I am pretty well convinced, there ought to be a degree of coarseness allowed in all male animals that are kept as stock getters; for, by a continued practice of breeding from the finest features, the stock become too diminutive—ornamental without use; of which a strong proof is given in the new Leicester sheep, and some other animals noticed in this work.

Our practice at Slane being crowned with uncommon success, and great profit, I shall give a specimen of our mode of treating our pigs, and particularly two, which were of the same age, and bred by a cross, but killed at different periods. When the sows were ready to farrow, we put them in a sty, littered with clean straw, about three days before the time, that they might make their beds ready; giving them pollard and swill in a sparing manner (the pollard being of a scowering nature), to render them more empty at the time: when they were farrowing, a careful person was ordered to attend them, to take the pigs from them immediately, having a basket containing some clean straw dried by the fire, with a woollen cloth to cover it; this was set by the fire-side, and we then gave each pig, with a spoon, about three spoonsful of warm new milk, a little sweetened. As soon as the sow had done farrowing, the pigs were taken to her, and let suck, a person attending them; when they had satisfied themselves, they were put into the basket again, and carried to the fire. They were put to the sow about every three hours; and the first night taken into the pigman's house, and set in the fire-corner, being suckled the last thing before he went to bed: and sometimes, if any of the pigs appeared weak, they were carried to the sow to suck in the middle of the night, and always very early in the morning, when, if the pigs all seemed strong, and the sow was a known good nurse, they were suffered to remain; but if not, brought away again, and not left with her till the second day. By this management and care we never lost one pig that was farrowed alive: Earl Conyngham was so well pleased with the pigman's boy, as always to make him a present for preserving the life of a weak pig of this valuable kind, and he gave him the appellation of *Lord Bacon*.

When the pigs were strong enough to walk, they were regularly put into a grass field in the morning, as soon as the sun was up, and left for five or six hours a day. The sow was fed pretty plentifully with oats, which the young pigs readily learned to eat; they were then suffered to run into a separate place, and as many oats given them as they would consume, for about seven weeks, the greatest quantity being two quarts, or half a quartern, each pig a day. Then they were allowed skim-milk in winter, and whey in summer, for about a fortnight; and were after that time fed with swill, and some oats given them, until they were about sixteen weeks old: they were then, if in the approach of winter, kept in the fold-yards; if in summer, on grass.

I highly recommend pigs for store to be farrowed in the spring months, the latter end of April or May, that they may have warm weather before them. But as one litter of pigs from the breeding sows must then come at the approach of winter, those pigs, whilst small, should be put in the rick-yard: though, with the utmost care, they would not grow and prosper with us in the same manner as those farrowed in April, &c. nor did they ever make so fine hogs. The two pigs which I meant to particularise, as a proof of what may be effected with the best kind, were farrowed in the spring, produced from two Irish sows, got by the large boar, half-blood, and supported until sixteen weeks old as above related; the stubbles were then ready for them; and during the winter they were kept in the fold-yards: the number we had was so large, that I often wondered how they lived, as they had no other support than what they picked up. We had above one hundred pigs, including great and small, with upwards of a hundred head of cattle and horses. At the end of April I thought of selling about seventy; but the times were so unfavour-

able for the sale of pigs in Ireland, the stills being stopped, that they were not to be turned into money. Finding my plans frustrated, and having a considerable proportion of small pigs, and more coming forward, I was at a loss to determine how to act. About this time the earl and family were leaving Slane for London. The lawn, the grounds, and plantations, comprised about eighty acres; there was a prodigious rookery, and under the trees much grass of a sour nature, constantly avoided by the sheep, cattle, &c. Having at different times observed the pigs very industriously feeding on this refuse grass, and there being many weeds and much sour grass in the plantations, I ventured to put near one hundred and fifty pigs, large and small, on this feed alone, without any other support. At that time I had at least one hundred sucking pigs, and I calculated on having near three hundred by the winter; thus I was embarrassed by having too great a number: but as the earl and his family were leaving the place, the proceeding I had resolved to adopt could not give offence, or pigs are an unsightly stock; and they made dirt on the gravel walks, which would not have been permitted had the family remained at home. However, they went to France, and did not return till the next year; therefore I had an opportunity of letting my large stock remain out all the summer; which was not only an experiment in keeping pigs on grass, but as they consisted of different breeds—the true best Berkshire, the half-breed by the Berkshire boar from Irish sows, the true Irish sows, the white Chinese, and the black Chinese—I ascertained which would do the best on grass: the result was, the best true breed of the Berkshire kept their flesh, and even got fatter than is proper for breeding sows; the real Irish sows were the poorest of any; the half-breed from them did very well, full as well as the white

Chinese; the black Chinese inferior to the white, but the latter were the best I ever saw of that sort (the boar was from Sir Robert Lawley, and the sow from Mr. Swinfin; when full grown, if properly fed, would weigh from 20 to 25 stone, 14lb to the stone). I found no other inconvenience from them in the pasture, than in being obliged to keep them rung, to prevent them from rooting. Some of them made beds or resting-places in the plantations; about twenty lodged all the summer in the old castle, a distance from the farm-yard; others came up to the farm-yard at night: but what is remarkable in this proceeding, I did not keep a single sheep, beast, or horse, the less. Hence I am thoroughly convinced there are many pastures which grow sour grass, neglected by other stock, that would support pigs; those animals would even be of service; for by the pigs in summer eating the grass under the trees at Slane, where rooks had dropped their dung, which during other seasons had rotted, the sheep fed upon it in the winter. After the harvest was begun to be brought in, they resorted to the buildings. I had a remarkable crop of peas, with much straw and little pulse, some of which I carted into the fold-yards; and as soon as the stubbles were cleared they were driven on them every day, being confined at night in the fold-yards: by this management they were made sufficiently fat for pork; and when the butcher from Drogheda, who came to buy some other stock, saw them on the stubbles, he requested I would send him four weekly to kill. He accordingly killed four, and they answered very well: but about this time the whole herd were seized with the measles, to which swine are subject (a disease I had never before known), and this prevented any further sale. However, it is hence clear that those pigs had thriven well on grass, as at that time they had been only a fortnight on the stubbles. When they had had the

run of the stubbles, I took up forty-two of the largest to fatten on raw potatoes, a food commonly used for the purpose in Ireland: but after they had been feeding about twenty days, I began to suspect that it was likely to be a bad business, as they appeared to me to remain only in a sort of store condition; and, as most of them were too large for pork, they required to be made fat for bacon.

It happened at this time, that a gentleman who lived at Slane, and had seen the pigs every day while at grass, went, with another gentleman of his acquaintance, to look at the stock on the farm; when we came to the pigs I had put up, he asked me to sell them to him: I accordingly set a price on them, and he readily agreed to give me 28s. each for the forty, allowing me to choose two for my own use. When I had selected a couple, he offered to buy them; I asked him three guineas for the two, and he bid me three pounds—so indifferent was I at the time about them, as I had many more.

I continued to give those two pigs raw potatoes for four or five weeks; when seeing they were very little improved, I fed them with peas for about two months, and with this food they made rapid progress: I then gave them barley-meal, mixed into paste; and they were much admired by the different gentlemen who viewed the stock of the farm: but at that time I had not the least idea of their real value. In the first week in April there was a fair at Slane; and as I knew the earl, though then abroad, would be gratified by having some of our fine stock exhibited, I shewed sheep, cattle, a stud horse, &c. a boar, and those two pigs; when the latter were so much admired, and the people crowded round them in such a manner, that, it being a hot day, they were in danger of being suffocated; I was therefore compelled to put them into a house, and let the people in at

separate times. A butcher and jobber from Dundalk bid me 11*l.* 7*s.* 6*d.* for either of them: each was guessed at 25 stone, 14*lb* to the stone. A few days after I killed one, which weighed 25*st.* 3*lb*. I then began to take notice what the remaining pig ate daily; and, as we made the barley-meal into paste, and that into balls, by weighing what it ate one day, we could easily ascertain how much it consumed each day. When we first began to weigh, it ate twelve balls daily, but soon declined to ten. The balls were mixed up with water, as hard as they could be made to hold together, and given twice a day, morning and evening, at six o'clock each time, with water to drink; the vessels it ate and drank out of were cleaned regularly once every day; and if it left any of the balls, and went to lie down, the boy who served it took away the leavings, which were given to the store pigs. The house was swept clean out every morning; and it had a board to stand on, that the stones might not lame its feet: the straw was lightened up twice every day, and the pig walked out at that time, when it generally made urine and dung, which assisted in keeping the house sweet; and twice a week the beaten straw was taken out, the part swept where it lay, and fresh, clean, dry straw given. It was walked into the stable-yard about once a fortnight, on fine sunny days, and washed all over with sope and water, with a brush; and it took such pleasure in being washed, that it would scarcely stir a foot during the whole time.—I have the more fully described this pig's treatment, as it might probably be thought, on reading the result hereafter mentioned, that many things were done unnecessarily; but the great progress it made with such management must surprise any person, though some part may have been owing to the method of fattening.

To return to the pig that was killed.—Whilst it was

sucking the sow, and nine weeks after, being two hundred and thirty-six days, the expense, at half a quartern of oats daily (oats being 10s. a barrel), was not quite 1*d.* a day: pigs do not eat so much as half a quartern daily for the first month; but as some skim-milk was given, for which no charge is made, that average may be nearly correct; therefore the expense for that time would be 19*s.* 8*d.*: then, for twelve months, in the fold-yard during winter, and grass in summer, at 4*d.* a week, 17*s.* 4*d.*: feeding with potatoes for fifty-five days, at 3*d.* a day, 13*s.* 9*d.*: afterwards peas sixty-two days, at 4*d.* a day, 20*s.* 8*d.*: and lastly, barley-meal (barley at that time 11*s.* a barrel), 7 lb a day, at 4½*d.* a day, for sixty-two days, 23*s.* 3*d.* Now, this pig weighed 25 st. 3 lb, and the price offered was 11*l.* 7*s.* 6*d.*: the statement, at one view, will be as follows.—

<i>Expense.</i>	<i>L. s. d.</i>
236 days, at 1 <i>d.</i> a day	0 19 8
52 weeks, in the fold-yard and grass, at 4 <i>d.</i>	
per week	0 17 4
55 days, at 3 <i>d.</i> a day, potatoes	0 13 9
62 days, at 4 <i>d.</i> a day, peas	1 0 8
62 days, at 4½ <i>d.</i> a day, barley	1 3 3
Profit	6 12 10
Total	<u>L. 11 7 6</u>

<i>Produce.</i>	<i>L. s. d.</i>
Price bid	<u>11 7 6</u>

The other pig was kept one hundred and four days after this was killed, when it was supposed to weigh about 25 stone: it was rather the smallest, but the handsomest and fattest, and I kept it for show, thinking

it shewed more blood. About this time it declined eating the usual quantity about one sixth, which is about three farthings per day, and will reduce the cost in keep to $3\frac{1}{2}d.$ a day for the one hundred and four days, amounting to $1l. 12s. 6d.$: this sum added to the cost of the other pig that was killed, which was $4l. 14s. 8d.$, makes $6l. 7s. 2d.$ For this Earl Conyngham received of the butcher $17l. 1s. 3d.$, when it weighed 45 st. 7 lb: the account will therefore stand as follows.—

<i>Expense.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
The same as the former	4	14	8
104 days' keep, at $3\frac{1}{2}d.$ a day	1	12	6
Profit	10	14	1
	<hr/>		
Total .	<i>L.</i> 17	1	3

<i>Produce.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Sold for	17	1	3

Note.—Considering this pig in the same ratio with the former, before the one hundred and four days, it paid $9l. 4s. 1d.$, which is nearly $1s. 10d.$ a day: its cost being $3\frac{1}{2}d.$ per day, the neat profit, for the one hundred and four days, is $18\frac{1}{2}d.$ a day, or $10s. 7\frac{1}{2}d.$ a week. In weight, supposing it to weigh 25 stone at the time the other pig was killed, it gained 2 lb 11 oz. 9 drs. a day for the one hundred and four days; and from November the 5th, about the time these two pigs were put to fatten, till the 5th of April, being one hundred and eighty days, considering them at that time to have weighed 14 stone each, they will have gained about 14 oz. a day to the latter period. Now, this result is somewhat contrary to the general opinion; as it has always been said to be a waste of time and money to give food to fat animals: this pig paid as well, and gained as much

weight, in one day latterly, though eating less food by one sixth, as he did in the fore part of his feeding in three days and a quarter. Thus it appears there are animals, of the best description, that will pay more money when in a fat state, than they do when first put up. At what stage this pig attained the first weight I cannot tell; nor whether the attention and manner of feeding be not particularly worth notice, though I certainly think in the affirmative, as it appears very plainly that the animal fed much slower in some or in all parts of the time before such attention was paid. I am further of opinion, that if this pig had had a companion he would not have fed so quickly; which tends to substantiate an idea I had long since formed, that a great number of animals put together to fatten is improper: and I have, in all my reports, written against large pastures. It is also a doubt with me, if Mr. Bakewell's method of feeding were not superior to his breeding, as he was particularly attached to small pastures; he observed, that animals' resting quietly was equal to food—and it is much cheaper.

The measure of the last-mentioned pig being taken, July 19th, 1803, the dimensions were as follow:—

	Feet.	Inches.
Height standing	2	10
Breadth over the shoulders	1	10
Length from the nose end to the forehead, where the ears are placed	1	0
Breadth over or across the loin	1	8
Length from the forehead, where the ears are set, to the tail	5	0
Girth round in every part of the body . . .	6	2

Whole weight, 46 st. 3 lb, 14 lb to the stone.

The value of a pig of this weight, at the present market price of pork, which is 9*d.* per pound, or 10*s.* 6*d.* a stone for carcases, would be 24*l.* 5*s.* 3*d.*: the average price of barley being about 6*s.* a bushel, and the weight he consumed each day 7 lb, that, at 1*½d.* per pound, would be 12*½d.* a day; while, as his increase daily was 2lb 13oz. 2*dr.*s., that, at 9*d.* per pound, would be 25*½d.* a day; thus, in those dear times for barley, he would have paid 12*d.* per day profit. I had even an idea I could make him weigh 60 stone by the time of the show in Dublin, which was then distant ninety-one days; though had he continued making the same progress daily as when he died, could he have held it so long, he would have gained 29 stone more, which added to the 46 st. 3 lb, would have been 75 st. 3 lb.: this may seem an impossibility; and had I not experienced the weight gained in the one hundred and four days, such would have been my opinion.

It may be proper to give an account of the death of this pig, as a caution to prevent similar accidents, —When Lord Conyngham returned from France, he brought with him two Irish gentlemen: the fat pig being shewn to them, they reprobated my practice in making it so fat, saying it was a waste of money. His lordship, becoming angry, then offered a bet, that I could sell it for the sum here stated, which one of the gentlemen took; in consequence of which, my lord requested I would send to Dundalk: but recollecting the butcher at Drogheda, who I knew would readily give the sum, he was fetched, and in an instant paid his lordship the money. My lord was so much pleased with the pig, that he desired the butcher would let it go to be shewn in Dublin, to the lord-lieutenant and other noblemen and gentlemen of his acquaintance, which was with pleasure permitted by the butcher. A cart was accordingly prepared,

matted and stuffed with straw, in as soft a manner as possible; and the men set off in the cool of the evening, to travel all night: but they had scarcely got twelve miles before it died; which I greatly feared at the time, knowing instances of very fat pigs dying in the conveyance of a cart.—Mr. Chaplin killed a very fine boar, of this same kind, in endeavouring to convey him from Tathwell to a show at Lincoln; he died in going about twelve miles. Mr. Lewis, a gentleman in Ireland, killed a very fine boar in conveying him six miles, towards Balinasloe, to decide a wager laid between Earl Conyngham and himself to shew their boars for twenty guineas. Knowing the danger of this proceeding, I requested his lordship's permission to let me forfeit the money rather than run the risk, which my lord granted me: but there was no forfeit, as Mr. Lewis's boar died.

Before this accident, I had an idea that those extremely fat pigs choaked; but the death of this pig made me acquainted with the real cause;—they have such a prodigious weight of fat within them, and are so very closely made internally, that the jolting of the cart breaks the skin of the kidney fat, and occasions immediate death. When this pig was opened, the skin was found broken, and there was a very large quantity of fat, like oil or fish blubber, dispersed in the abdomen.

This accident was the more unfortunate, as it prevented me from trying the experiment I intended; for I wished to see to what perfection I could bring this most wonderful creature, not merely for my own curiosity, but for the good of the public: and I had a fair prospect of obtaining forty guineas if he lived, and went on well until the October meeting in Dublin; as the same butcher who bought the pig offered me thirty guineas for him, to deliver him in Dublin, allowing me the liberty previously of shewing him for a prize of ten guineas given by

the society: but there was a probability of my making a much larger profit of some of the half-bred sows and boars, as this pig, which was of the half-breed, had reached such high perfection. Unless I had had a carriage with springs, that the pig could have walked in and out with ease, as it would have been dangerous to lift him, my intention was, to let him walk to Dublin, giving him his own time. The reader will be naturally inclined to say, this pig was a none-such; but I have reason to believe that there might in the forty I sold be others as good.

The *Sussex* pig is another very good kind, distinguished by being black and white, but not spotted; frequently black at both ends, and white in the middle, somewhat resembling the sheet cattle. These pigs are of smaller size, but very handsome in their form: the skin, or rind, is superior to that of most other kinds; the hair very thinly set, fine and long: their general size, when full-grown, is about 18 or 20 stone, 14 lb to the stone. They are quick growers; and, with proper care, attain perfection more early than any other breed. Their ears are neither short nor long, and stand pointing very forwards, in a particularly good form. Their bone is not remarkably small, but clean and well shaped. They have a very quick eye; and some of their faces or snouts are long, but thin, with a small mouth. I have fed some of this breed so formed in the head, which were remarkably quick feeders: therefore, from this experiment, I do not think the length of the snout any very material fault, if the ears be but handsome and stand right.—The best pigs of this kind, perhaps in the kingdom, are in the possession of Charles Callis Western, Esq. M. P. of Felix-hall, near Kelvedon, Essex; by whom they are raised in the highest perfection.

The *Suffolk* white pig stands high, is narrow in the

back, and the forehead is rather broad: the ears stand pretty well: the hair is short, with many bristles. It is not a kind I can recommend. The weight, when full grown and well fed, is from 16 to 19 stone, 14 lb to the stone.

Kent white pigs are very similar to the *Suffolk* whites. We had a boar and sow sent to Slane as the best of the breed in the county, but they cut a very poor figure among our stock of pigs, and were almost starved with the same food. These pigs are long in the legs, and narrow in the back; their ears neither short nor long; hair short, and thickly set, which always denotes thick rind; their forehead broad, and ears standing rather wide: weight from about 16 to 19 stone, when full-grown and fat.

Yorkshire.—This pig is similar in colour to the *Berkshire*, being white or sandy, with black spots: its ears are longer and not so pointed forwards; hair short and hard, with many bristles: it is large in the bone, with flat sides, and long in the legs; and, when full-grown, weighs from 25 to 30 stone. Pigs of this species stand the *London* distillers' keep, and sties without litter, well, as they lie much on their flat sides, to which their hard hair is a protection. I have had some of them; they are a kind of pig that will bear moderate usage better than several others, but they are slow feeders, require much time, and are frequently deceitful in proof at last.

The *Lincolnshire* white pigs are distinguished as being of superior form to all others, except the *Berkshire*. Their ears are neither long nor short; stand rather near together, pointing forwards; are sharp at the extremity, rather flat, and turn up a little at the ends. Their head is well formed, of middling length in the face; the hair thinly set, and long, with not many bristles; the rind thin; straight and level from the head to the tail, and of good breadth; deep in the sides, and moderately round; (it is a very good property in a pig to be deep in the

sides, if they are but broad above): longer than many other breeds of pigs from head to tail; of very fair size at a year and half to two years old: properly fed, they weigh from 25 to 30 stone, 14 lb to the stone:—in short, they are a square-made, handsome pig, and none other can vie with them for profit but the Berkshire. They are more tender, which must be expected from their colour, as white always indicates tenderness, and black or sandy the contrary; but, the county being large, pigs there, as in all other counties, vary: the true breed is the most numerous in the middle marshes, near Louth. I once got a boar of this kind, to cross the best Berkshire sows; but, though far from being a bad breed, it rather did harm: the produce were full as high and long, but not quite so broad, nor so well furnished—not so heavily fleshed, or so well mixed: they were equally quick in fattening, and about the same time in attaining perfection. Neither of these sorts come to their prime so soon as some other breeds; nor indeed will it be found that any large breed of animals reach their full growth so early as those of a smaller kind.

Cheshire pigs are distinguishable by their gigantic size: in colour they are black and white, blue and white, (not spotted, but in large patches of black or blue), and some all white. Their heads are large, with very long ears, hanging down on both sides of the face, so that they can scarcely see their way: they are, from head to tail, remarkably long, as is the tail likewise; very narrow according to their size; and many have an elevated or curved back: they are very flat on the sides, and deep; with large bones, long legs, and much loose skin. Pigs of this description must be allowed to be of an improper form; yet I am of opinion I have seen some of them that, with extraordinarily good keep, would have paid more money for two years' support than others of very esteemed breeds. The first pig of this kind I ever

saw, Lord Somerville shewed me before I went abroad ; it was of most extraordinary size, and far from being a bad pig. Seeing this, I went into Cheshire in pursuit of some of the breed to take with me : I purchased a boar and two sows ; but they did not thrive so well on board as the Berkshires, though nearly equal with the Chinese : they were all very high kept. I have my doubts whether, if a sow of the Cheshire kind were put to a very good Berkshire boar, the most profitable breed might not be obtained that has ever yet been produced : there is something between the two which I think would effect wonders. I cannot recommend the Cheshire pigs in their present form, as I should imagine a pound of fat bacon from some of them would cost eighteen pence. The sow that bred my fat pig at Slane, though not so large as the Cheshire pigs, greatly resembled them in make.

Having noticed the gigantic size of these pigs, and finding that Mr. Culley has in his work recorded a phenomenon, I will, by way of proof, take the liberty to insert the account.—“ On Monday, the 24th of January, 1774, a pig (fed by Mr. Joseph Lawton, of Cheshire) was killed, which measured, from the nose to the end of the tail, three yards eight inches, and in height four feet five inches and a half : when alive, it weighed 12 cwt. 2 qrs. 10 lb ; when killed and dressed, it weighed 10 cwt. 3 qrs. 11 lb, or 86 st. 11 lb avoirdupoise.—This pig was killed by James Washington, butcher, in Congleton, in Cheshire.” Now this pig, at the present time, would be worth, at the fair market price, which is 9d. per pound, 45*l.* 11*s.* 3*d.* Suppose it to have taken twelve months’ feeding, and the food to have cost 10*s.* 6*d.* a week, or 1*s.* 6*d.* a day, the expense would be but 27*l.* 6*s.* ; which sum taken from 45*l.* 3*s.*, leaves a balance of 17*l.* 17*s.* for the pig in its lean store state. If we calculate the raising from the first, after sucking the sow

for seven weeks, and allow it to have been fed on corn, or other food, at 1*d.* a day, until twenty-three months old, reckoning this large pig to have consumed one third more than one of my Berkshire pigs did, the expense would be, to that time, 6*l.* 4*s.* 7½*d.*; then, admitting it to have cost one third more in fattening for a whole year, or 10*s.* 6*d.* a week, the sum is 27*l.* 6*s.* The whole collected will stand as follows:—

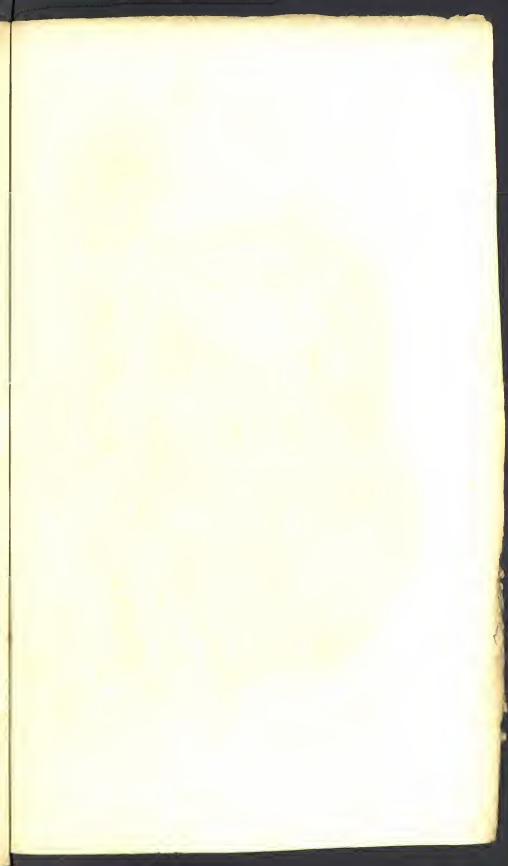
<i>Expense.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Twenty-three months' keep	6	4	7½
Twelve ditto fattening	27	6	0
Profit	11	12	4½
Total	L. 45	3	0

<i>Produce.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Pig's value	45	3	0

If we then, as a contrast, suppose one small Chinese pig to weigh 12 stone, at 10*s.* 6*d.* a stone, the value would be 6*l.* 6*s.*; and taking the cost at 6*d.* a week for half a year, or twenty-six weeks, that would be 13*s.*, or for one whole year, or fifty-two weeks, at 4*d.* a week, 17*s.* 4*d.*: the fattening would require twelve weeks, at 7*s.* a week, which would be 4*l.* 4*s.* The sums brought into one view will appear thus:—

<i>Expense.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Twenty-six weeks' keep, at 6 <i>d.</i> a week	0	13	0
Fifty-two weeks' ditto, at 4 <i>d.</i> ditto	0	17	4
Twelve weeks' ditto, fattening, at 7 <i>s.</i> ditto	4	4	0
Profit	0	11	8
Total	L. 6	6	0

<i>Produce.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Pig's value	6	6	0





CHINESE HOG.

Published from the original drawing by H. Schreyer, of the Museum of Natural History, London.

Now, it would take seven and one sixth of those small pigs to afford as much shambles meat (86 st. 11 lb) as given by the one large pig, the cost in raising and fattening which was estimated at 33*l.* 10*s.* 7½*d.* and the profit 11*l.* 12*s.* 4½*d.*; the expense in raising and fattening the seven and one sixth small pigs would be 40*l.* 19*s.* 4*d.*, and the profit 4*l.* 3*s.* 8*d.* But the large pig was allowed thirty-three months to bring him to perfection, and the small pigs not quite twenty-two months; therefore there is one third of time to be added as an additional profit on the small pigs, making the sum amount to 5*l.* 11*s.* 7*d.* Thus the profit on the one large pig would be 6*l.* 0*s.* 9½*d.* more than that on the seven and one sixth small pigs, even supposing him to consume a third more food for the whole time, which I have great doubt of being found the fact; as I have made many trials with various animals, and have been extremely disappointed in the results:—it is unnecessary to describe them here, as the reader will find them recorded in different parts of this work: And in regard to the almost general opinion, that the flesh of small animals is finer, though it may be true of meat consumed fresh, yet when salted I believe the reverse to be the fact; for when meat is cured, and kept for some time, the flesh of large animals retains the flavour and the juices much better than that of small. —Some anecdotes will be found in the Introduction illustrative of this subject.

Shropshire.—The pigs of this county are a large, coarse, clumsy kind of animal, with much bone and hair, and many bristles: their colour, much white, with black patches; some rather sandy. Judging by their appearance, I would not recommend them to the farmer; but they are said to be liked by the distillers, as answering with their keep—wash and grains, with an addition of peas or barley-meal, to make them up: those latter persons,

from what information I can draw, require a coarse, heavy pig, scarcely suited to any other purpose; they give their pigs long time in fattening, and much excellent food.—Weight from 25 to 30 stone, 14lb to the stone.

Norfolk.—This is a small sort of pig, generally white, with thin hair and small bones. It is a species of the white Chinese; said to be a quick feeder: weight from 6 to 10 stone, 14lb to the stone.

Chinese.—Of this breed of pigs there are many distinct kinds, varying much both in shape and colour. The white Chinese are very perfect, when of the best: they are remarkably white, both in hair and skin; their hair is thinly set, with very few bristles; eyes more remarkably bright and fiery than any other, resembling the eyes of a ferret; prick-eared, well set on, and very well formed: in carcase, they resemble a bag filled with any fine substance, and tied up, as there is no waste in their form, but about an inch and a half at the nose end or snout: they are very delicate to raise. I had some of this kind at Slane; and it was seldom we raised more than four or five of a litter, with all the care and caution possible. These pigs are generally recommended as proper for roasters: ours were too valuable to be applied to that use, as we sold them at five guineas a piece from the sow; but I had one that bruised itself in ereeping under a door, which I had killed and roasted: to my taste it was too rich—nearly all fat, which is the constant fault of those pigs at all ages—too much fat, and too little lean. The sows are most commonly very bad nurses: they are so much disposed to fatten, that they frequently decline in their milk in about a month after farrowing, and begin to fatten, when they will beat some of the young pigs; and their milk does not seem quite healthy, as one or two of the young pigs in every litter

had the white skit from the age of two till four weeks old. We had some of the half-breed, from a black Chinese sow by a white Chinese boar, which fattened uncommonly quick, and were very beautiful pigs; they proved all white, though the sow was black: being a better nurse than the white sows, she raised eight. The pigs of the true breed, at the age of eighteen months, with about eight weeks' fattening, weigh from 12 to 14 stone; and when kept till two years old, they will reach 18 or 20 stone; 14lb to the stone.—These are not a very profitable kind.

Black Chinese.—These pigs are black, with bald faeces, not quite so handsome in form as the last kind; but they are hardier, and the sows better nurses. Many of this breed are not so well made in the fore part of the head, being broad in the forehead, and the ears stand wider: they are longer in the legs and carcase, have remarkably fine hair, and consequently fine flesh; and are thin in their rind, quicker growers, and altogether better farmer's pigs. Weight, at one year and a half old, from 12 to 14 stone; and at two years old, well fed, from 18 to 20 stone; 14lb to the stone.—These pigs were originally bred at Bredworth, near Doncaster, in Yorkshire, introduced there by the late Bishop of York.

White Chinese; (another sort).—These are white, with black or sandy heads. They are similar to the others in every respect, except about the head, not being so broad in the forehead, and their ears stand better; altogether a handsome pig. They are to be found at — Fubjam's, Esq. Aldwark; and at F. Farrer's, Esq. Eamber Grange; both places near Rotherham, Yorkshire: there is no small-sized pig before them. But Mr. Farrer took a cross from a white Lincolnshire boar I had, of the large kind, mentioned in this work: the breed in consequence be-

came much larger; and Mr. Farrer observed they were much improved, as it threw into them more lean, and made them better bacon pigs.—In weight about the same as the last.

Black Chinese; (another sort).—These are the largest of the kind I ever saw, and of as perfect a make as possible in pigs. To be found at the late Mr. John Taylor's, at Cantley mills. There is a print of one of these pigs, a sow, to be seen in the Society-room, Dublin; and at many other public places. Mr. Fubjam bought this very sow to breed from; she was supposed to weigh about 40 stone: whether she was of the true breed I cannot tell, as Mr. Taylor bred many pigs of the Chinese kind, chiefly white.

Black Chinese; of a small sort, with white or bald faces.—These are a perfect made pig. When I lived at Doncaster I had the best Chinese pig ever yet exhibited, hereafter described; numbers of gentlemen visited me from all parts to see it; among the rest, a gentleman from Northampton, who sent me, as a present, two sow pigs and a boar of this kind: I kept them to breed from, but they proved unprofitable. I had at that time seldom less than from fifty to a hundred breeding sows and store pigs, chiefly of the Berkshire or white Lincolnshire kinds; but though so much larger than the Chinese, while the latter, on the same keep, remained in rather a poor state, the large sows would be fat, and ready to kill for bacon. I then thought, as most of the Chinese pigs seem of a wild kind, that confinement did not suit them, or that they wanted grass; which in part might be the fact. I therefore killed the boar pig at half a year old, then weighing about 6 stone, having much superior boars in the neighbourhood: from the sows I took some litters of pigs by Chinese boars, and others by crosses

with my own large boars; but the produce were not so profitable as my own large pigs, nor did they fatten quicker, though the cross was much better than the true breed. At length I fattened them, and killed the smallest, at three years old, weighing about 10 stone; the other larger one I kept till four years old, at which time she weighed 12 stone, 14lb to the stone: when put up, they throve well, fattened quickly, and made very nice pigs; but had the common fault of the Chinese breeds, being nearly all fat.—The bacon bore no comparison with my own kind.

Black-and-white Chinese.—This sort are variously patched with black, on no particular part. Their heads are very ill-formed, having a somewhat hollow face, which is short: they are broad in the snout, with a wide mouth; broad and coarse in the forehead; their ears stand wide, are rather large for their size, broad and round at the ends, and hang down on each side of the head: they have much loose skin, and coarse hair; are crooked in the hind leg, and the same before. Sows of this kind are probably equal to any mentioned in this work for producing roasting pigs, as they are much better nurses than most of the small breeds, and larger than some: they are, in general, very prolific. I have known a sow of this breed have twenty pigs at a litter; but when it happens that sows of any kind have more pigs than paps, the most proper method is, as soon as each pig has challenged its pap, which they quickly do, to observe when they suck, and take those away from the sow that have not got a pap; for if they be let remain, not only they themselves generally pine away, but, by robbing others, they cause more of the litter to pine away likewise. I cannot recommend this breed for stores: they are very deep in the belly, and hollow and narrow in the back, their belly nearly touching the

ground; and, although they are larger in the store state, by not being of a fattening kind, they cost much feeding, and do not attain any great weight at last: but, as they are by no means bad nurses, if a good boar of any kind were put to them the breed might be much improved. However, there are several kinds mentioned in this work which I should prefer before them.—The usual weight of the large pigs, when eighteen months old, is about 10 or 12 stone, and they are not much heavier when older.

White Chinese, of a very small kind.—These pigs are in form what the critic admires, being as perfect as a bladder filled with hog's-lard, and nearly of the same size and quality; they are, in short, a complete mass of fat, At one of the Smithfield shows, a pig of this breed obtained a prize. I heard a pork butcher in Newgate market, who kills more pork than any man in London, say, it was the worst pig he ever saw; he declared no person would accept of such pork to eat: and he observed, the judges were greatly deceived in supposing it to have the least offal, as, on the contrary, it was all offal; for, in the sale of such pork, the fat must be nearly all cut off, and, there being scarcely any lean, although the bones were small, when pared, there would be little left but bone: the legs, too, were so short, it could not be driven any distance to market: in fine, he could not perceive in it a single perfection.

These are certainly pigs in miniature: their legs are about two or two and a half inches long; ears the size of a large leaf on an apple-tree; the length of the jaw, from the snout end to the crown, about six inches; from the crown of the head to where the tail is set on, about two feet; height about twelve inches; weight, when full grown and fat, 6 stone at two years old. I cannot recommend this pig for profit. Made into bacon, four-

teen such pigs would be required to give an equal weight of useful flesh with one Cheshire pig; and I am persuaded the fourteen would be found to have more waste in garbage, blood, &c. exclusive of the porkman's observation, of their being all fat: indeed I very much doubt whether if twenty of this little breed were killed, cured, made into bacon, and then boiled for the use of a family, they would feed so many people as the one pig, there would be so much outsides, and so much fat consumed in the boiling.

Sandy or blue Chinese.—These pigs are mostly of a sandy colour, without white; some are blue. The first sow of this kind I heard of, belonged to Lord Monson, at Burton, near Lincoln. The pig of which an account follows, was bred by my brother; I bought it of him some time in May; it had then had a litter of pigs: I suppose it might be a year and half old: weighed about 8 stone. I purchased it with an intention of keeping it for a breeding sow; though my brother told me she was so inclined to fatten she would not breed. I therefore put her into a grass pasture, and let two young boars accompany her all the summer, allowing her no other food than the scullery stuff and grass; but without success: the fact was, after having had one litter of pigs, she had been spayed by mistake. She was taken up to grains and brewer's wash in October; in November had a few peas, about three bushels; and afterwards about the same quantity of barley-meal: I then sold her to the butcher, when I imagined she weighed about 30 stone, as he was to give me six guineas for her, and pork at that time was 4d. per pound. Thus, supposing she gained 8 stone at grass and grains, the increase while fattening, for eighty-four days, will be 17 stone, or 21b 13 oz. 7 drs. a day. However, she was repurchased by Mr. Sayle, of Wentbridge, and not killed for more

than a year. I kept her for Mr. Sayle about nine months, when he sold her for 21*l.*, and she was carried through the country as a show; after which she returned to me again. The weights are rather guessed, and consequently not likely to be so correct as those of the pig at Slane; but, by way of shewing her probable increase, I will bring the whole statement into one view, viz.

	Stone.
Weight at a year and half old	8
— gained at grass (five months)	8
Increased on peas and barley-meal (eighty-four days)	14
Gained afterwards about	10
Total weight	<u>40</u>

The following is an account of her first cost, and profit:—

<i>Expense.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Twenty-two weeks at grass, at 4 <i>d.</i> a week	0	7	4
Three bushels of peas, at 3 <i>s.</i> 6 <i>d.</i> per bushel	0	10	6
Three ditto of barley, at 3 <i>s.</i> 6 <i>d.</i> per bushel	0	10	6
First cost	1	11	6
Profit	3	6	2
Total	<u>L. 6</u>	<u>6</u>	<u>0</u>

<i>Produce.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Price sold at	<u>6</u>	<u>6</u>	<u>0</u>

Thus, from the progress this pig made, if the statement be nearly correct, it appears that pigs of the best kind will gain 2½ *lb* a day and upwards, which is corroborated by the account of the pig at Slane. The quantity of barley consumed by this pig was a little more than

3 quarts, or about 6½ lb, daily. This was the only sandy-coloured pig of the Chinese breed I ever saw; Lord Monson's, which was the grandam of this sow, was blue, a colour which, of that breed, has never fallen under my notice. This pig had so extremely thin hair and rind, that the skin, when she rubbed herself, would blush ready to bleed; and a gentleman who was looking at her, happening to have a small hazel switch in his hand, gave a stroke to make her rise, when the blood sprung out immediately. In make, her head was rather short, remarkably fine at the snout, with a very small mouth; when eating, she took a very little portion of food at once, and used to lick it in with her tongue. (This pig's extreme aptitude to fatten first occasioned me to notice particularly the advantage attending the mouth of animals being small.) Round the neck she was thicker by two inches than a man who weighed 30 stone was round his middle, and this thickness continued along the back: she had a little hollow at the back of the shoulder, but very broad, being what is termed 'dale-backed,' which is considered a fault in animals; though I have heard an eminent grazier remark it as no objection, if they were but broad, particularly sheep, for when fat that part cuts thicker than any other. Her length was in better proportion to her height than is common: bones remarkably small; and the leg short: she was let down in the haunches so as absolutely to hang over; the fore part the same; and the sides cast out very round. In regard to offal, probably she had the least ever exhibited, according to weight.

Mr. Bakewell and Mr. Buckley saw this extraordinary animal, and the latter gentleman viewed her with admiration; I heard him observe, as they quitted the place, that she was a most wonderful pig: Mr. Bakewell re-

plied, he knew nothing about it, she was not in her perfection. (This was before she had eaten any barley-meal, and therefore shewed Mr. Bakewell's judgment, as she increased after that time more than 20 stone, being then about two years and a half old, when she must have done growing.) She was fed on barley-meal made into hard paste, served twice a day, with water to drink; and was so fat, particularly about the throat, that physicians and men of the faculty gave it as their opinion, she would die in a lethargy: for she was so excessively drowsy, that when raised for company to look at her, she would presently lie down again, and fall fast asleep. This opinion of medical men made me suppose that some kind of vegetable might be of service; I accordingly put her into the garden, and suffered her to choose what she preferred, when she fixed on lettuces (which are probably the best vegetables that can be given to a pig); afterwards, in consequence, some were allowed her every day. During the summer she was unable to rise without assistance for about three weeks, and was therefore helped up twice a day, to feed and to ease herself, for she was never seen to dirty her bed: she walked in a very careful though tottering manner, and always went and lay near to the wall side, seeming to slip down against the wall by way of safety.—From this pig I formed the idea, that when pigs are lame in sties, the lameness is not in the feet, but in the sinews; for, as she was well littered, and there being no stones to tread on, her feet were perfectly sound.

N.B. This pig was bred by Mr. John Parkinson, of Asgarby; and sold to the author, by whom she was sold to Mr. B. Sayle, of Wentbridge: bred from a boar of Mr. Bakewell's; the dam, of an imported kind, bred by Lord Monson's steward. Height, at three and a half

years old, 27 inches; length 4 feet 11 inches; girth 9 feet 10 inches; across the loins 24 inches: weight 40 stone; and gained 7 stone in less than four months.

Thus, I have given a description of all the kinds of pigs that I think particularly worth notice; though there are many others in the kingdom besides those I have mentioned. There are some pigs in Ireland, which Mr. Culley has spoken of in his work; he says, "They are a small thin-formed animal, with bristles standing up from nose to tail, and exceedingly bad thrivers." He is right, excepting in one observation, which, by the by, is material;—they are all of the size of a large jackass, and very large-boned: as to their thriving, it is not uncommon for the poorer sort of men to be two years in fattening a pig. I have heard potatoes for pigs much recommended; but, as has been shewn, though our pigs in Ireland were of the best kind, I found potatoes a very slow food: however, the poorer sort of men's pigs live as their masters do, eating with them, and sleeping in the same house. I am of opinion, many of the Irish pigs ate much oatmeal; or I think, from what experience I had of them, they never would have been fat with potatoes. The real Irish pig had large ears, hanging down on the sides of the face, the ends, as they ffed, nearly touching the ground. As to colour, some were spotted, like the Berkshire pig; some white; others black and white; though all nearly of the same make. But by this time they must be much changed, as Mr. Ashley sent many Berkshire boars and sows over; and the number we sold, with the sows put to our boars, must have made a very great alteration. Therefore, Ireland stands greatly indebted to the Earl of Conyngham for introducing such pigs; and to myself, for the great care and attention I bestowed in bringing them to so high perfection, to shew

what might be effected : the thanks of that country are also due to General Needham, as the earl's connection ; to Mr. Swinfin, as my own ; and to Mr. Ashley, as a spirited breeder, for so industriously recommending himself, and obtaining so many orders. The importation has been so great, that by this time there are probably a thousand sows and boars of the full and half-breed in Ireland ; and, it being a pork and bacon country, the advantage is scarcely to be estimated : it must operate as a spur to the Irish breeders, by shewing them the real value of such men as Mr. Ashley, and others ; for better pigs were very much wanted, as the Irish were a most vile breed.

It is a trite interrogation with those persons who know nothing about the matter, " Where is the utility of such fat animals ? " I grant the public opinion is right, when they are made fat at a greater expense than they will pay ; but this question is asked only by a set of people who have not discrimination enough to know the difference in animals. Those pigs I am projecting are not in general use in any country, and only to be found, even in England, in some distinct places ; there are many, nearly whole, counties that do not contain a good pig : in Dorsetshire, though so large a county, I saw but two farmers who had pigs of any distinguished value, and they were of Mr. Ashley's breed. Dorsetshire being a dairy county, in which great numbers of pigs are bred and fed, if the proper breed were made general, it must be of some thousand pounds a year additional value to the landed property ; the number of pigs is estimated to amount to 17,949, and it would be no exaggeration to value the improved breed at 40s. a pig more, which would produce the sum of 35,898*l.* Thus the great advantage attending the improved breed of pigs is evident ; and it would benefit the poor in an equal degree

with the rich : for instance, were many a poor man who now keeps a pig, instead of one weighing 10 or 12 stone; to have a pig of 20 or 24 stone, which he could feed at the same, or frequently less, expense, what a difference it would make to that man's family !

In the counties I have surveyed, I seldom found that more than one or two breeders had nearly the right kind of pig. From what little I saw of the county of Warwick, good pigs seemed more general there than in most counties. But even in the Berkshire pigs there is great difference; some are perhaps of double the value of others; though the worst are good. I know a pork butcher who kills some hundreds of the Berkshire hogs yearly, and I have an opportunity of seeing them; but I never knew him have one of the true kind, although all very good pigs. The best of this breed are known by their hair being curled, and long, without a bristle upon them, which makes them look unsightly to a stranger. When I first got them, although they throve better than any other pigs of their size I had ever experienced, I still thought it a fault: indeed, from their colour and coat, they seemed to me as if they had had a cross of the bear; for they are both rough and fat, like that animal; nor was I convinced of the perfection of that kind of hair until I got into America, when General Stone pointed it out to me. The best of them utter a different sort of noise, or grunt, from other pigs. They have more flesh, in proportion to their fat, than any other breed; even at the weight of 30 stone there is not more of the latter than is required for the lean. Such are the animals wanted: and when occasion requires, they will continue improving, and pay well for what they consume.

I would not have it supposed, that the particular pig I have described in page 240, was rendered superior by extreme attention, or the quantity of food given; its es-

teemed value arose from the breed. There are many much larger pigs in Ireland, as to height and length, but not in thickness and close flesh; and though the Irish breed are fattening two years, they are scarcely eatable bacon at last. There are descriptions of animals, that will only attain a certain degree of fitness, and then stop; afterwards gradually declining. At some of the shows are often exhibited very fat animals, which are what is termed *patchy*, in part owing to their kind, but frequently to their having been a long time fattening; for when an animal has been fed long on one sort of food, he will commonly stop, and want a change—something better. My intention was, with this wonderful creature, to have given him milk at last; but even this pig must have stopped at some period; though, from the progress he had made, and was making, I am of opinion I could have carried him 20 stone, or more, farther. When the measure of him is considered, his height being but 2 feet 10 inches, length 5 feet, thickness 6 feet (1 foot thicker than long), it must appear astonishing how so much weight could be fixed in so small a compass; for cattle that come to that weight stand about double the height, and are much longer; therefore, there is a closeness of flesh required in animals that ought to be regarded.

I have throughout this work, in treating on the different kinds of animals, constantly recommended the largest in preference; having, from experience, found the largest animals of every species the best and most profitable: but it must not be understood that I mean that the large Lincoln or Gloucester sheep should graze on mountains and heaths, or the large Durham cattle on the highlands in Scotland; I merely intend that the largest of the sheep, &c. found in particular situations should be chosen to propagate from, great regard being still paid to form, shape, and kind;

and the largest, with proper form, will be found to live, and even to fatten, on as little food, and in less time than some of much smaller weight. But there is a material difference between pigs and other domestic animals, as the former are generally sty-fed, or at least very seldom live on grass alone; for although in the experiment I was obliged to try, when I had so large a number, the kind of pig I here recommend did very well at grass, better than any other, even than some that would never have exceeded one fourth the weight, pigs may all, of every kind, be fattened with corn: therefore it appears to me, that one general breed of pigs might be produced to suit all situations better than any other kind of animal. Those Berkshire rough-haired, feather-eared, curled pigs, are superior in form and flesh to all others, even to the best Chinese.

I have given many proofs of the valuable properties of the Berkshire pig for profit; it is also in my power to decide as to the qualities of the flesh.—We had the best kind of Chinese at Slane, as well as the half-breed of the Berkshire and Irish. I have mentioned Lord Conyngham's arrival from France, and bringing with him two gentlemen: among other things they were shewn the 25-stone pig that was killed in April, and cured for bacon; when they exclaimed against it, saying, 'Who could eat such fat bacon! give them a pig of 10 or 12 stone.' The family not being at Slane at that time, and the house-steward absent, his lordship requested me to provide them a dinner. Peas being then ready in the garden, for one dish I cut a piece of this very bacon, out of the middle of the flitch; it was given to the cook, and dressed. I happened to have occasion to speak to his lordship during the time he was at dinner, when I heard his guests pronounce it the very best bacon they had ever eaten. Those gentlemen had been much de-

ceived by its appearance; seeing the thickness of it, they supposed it a continued mass of fat, whereas, on the contrary, it was well mixed with lean in layers quite through the flitch—which is one of the great perfections in these pigs. This bacon was so much liked by his lordship that he requested me to let him have the whole of it; and when the hams were dressed, his lordship has repeatedly said to me, that he and my lady had dined off them. The servants in the stable-yard were one day complimenting me on my fine bacon, when the coachman observed, ‘the hams were so good, they went up stairs and down, until he thought they would have found the way by themselves.’ This bacon being consumed, that of the Chinese pigs came to be used, but it did not obtain equal praise, though they were all fed the same, on peas and barley-meal, and killed at a more early and proper season for the curing of bacon; but the reason was obvious—the Chinese were a mass of fat, without lean, and eat like hog’s-lard.

I have noticed a few apparently trifling occurrences, to shew that this treatise is written from experience and observation, not theory; though doubtless it will give offence to some breeders, who, thinking themselves competent judges, may probably pronounce the author and the people of London and elsewhere a set of fools: but there is an old adage, which is true, ‘The proof of the pudding is in the eating;’ it would become the breeders, therefore, to produce such kinds of stock as best suit the consumer’s palate. It is not for them to say, they know better what the consumer likes than he does himself: it would be just as consistent in the baker to make his bread of barley, oats, beans, &c. for the people in London, who will eat nothing but the finest wheat flour made into bread. Breeders and graziers need not hesitate at the improvements pointed out in this

work ; for the live-stock salesman, the carcase-salesman, the cutting butcher, and the porkman, all concur in requiring as much lean to the fat as can be procured : it is certainly a very interesting matter to them, as well as to their employers, that such stock should be sent to market as will find the most ready sale.

From received information, and the pigs I have seen in the distillers' possession, I have given it as a general opinion, that the Berkshire breed will not stand their treatment : how far it may be correct, is perhaps doubtful. When I lived at Slane, I sold thirty-five of the half-breed of our pigs to a distiller, at 20s. each ; I set them down at not more than 4 stone a pig, one with another : I saw them six months afterwards, when one or two weighed 20 stone, and I think they averaged 17 stone a pig ; thus, if I am right, they had gained 13 stone each, which was an increase of one pound daily, worth, at the present price of pork, 9d. This person was so well satisfied with them, that he declared they were cheaper to him than his own country pigs would have been if given ; and he was hence induced to buy one of our boars, at fifteen guineas, to give the use of him to the country around, that he might have the chance of purchasing the offspring. - He offered me twenty guineas to let him choose a pig of the litter from which he had his boar ; and, although he did not take the best, he shewed him for the prize at Naven show, which he gained.

As a proof of the reputation of my pigs in Ireland, I was at Mr. Harding's, St. James's-street, when two gentlemen entered, one of whom, taking up a book with my name to it, said, " This man has been of the greatest service in our country." The other asked " What in ?" To which he replied, " Introducing pigs and cattle, but

particularly pigs." He said, he bought two sucking-pigs, a boar and sow, of one of my lord's tenants, only of the half-breed, and gave five guineas each for them; observing, he had often heard of pigs and other animals living without food, and, though he did not mean to say that was the case with his pigs, yet, during the summer season they lived on grass only, and the breeding sows were still fatter than they ought to be for that purpose.

They were held in equal esteem in America. General Sprig, when I first landed, having heard of the fine stock I had taken over, went to Alexandria to see them, followed me to the city of Washington, and offered me one hundred pounds immediately for a short-horned Yorkshire cow. I had not then seen General Washington, and therefore did not choose to part with any of my stock. In the month of April following I had a public sale, to which General Sprig sent his son, who bought two bulls, one of the Rollright breed, the other of the polled Yorkshire kind; two heifers of the Yorkshire short-horned sort, and one of the Rollright kind; one boar and two sows of the Berkshire breed: when he drew upon his father for the money, the general thought the price very high; but in about a year and half afterwards he observed in public company at Baltimore, he would not have missed possessing the pigs for the whole sum. General Sprig said, he had had many imported pigs, from England and other parts, and flattered himself he had the best breed in America; but as a proof of the superior value of my pigs, he put them among his other stores, feeding them in the same manner, when they became fit for bacon, much too fat for breeding sows, and he was compelled to remove them into another fold.—It is customary in America to have a large spacious place, three or four acres, inclosed for the

purpose of keeping pigs, there being no grass during the summer in that country as in England; and they are fed with Indian corn all the summer, until the peach orchards are ready, when they are turned into them. Having no fold-yards, the pigs are fed all winter with Indian corn, which renders them very expensive to keep in America.—The general was so highly pleased with the purchases he had made of me, that, being a member of Congress, he moved it in the house to allow me a yearly salary for life, for introducing so valuable stock, saying, it would be an encouragement for other emigrants to do the like. Mr. Bowley was in company at the time the general was mentioning his pigs; he had bought a boar and sow, and some gentlemen recommended a cross from them, when, taking hold of his ear, he said, if ever he crossed those pigs he would give any man leave to cross his ear. Colonel Lyles bought a boar, which a few days afterwards was bitten by a mad dog: the colonel bred and kept many race-horses, and he declared he had rather have lost the best race-horse he ever had than the boar.

In America, it is not uncommon for such persons as General Sprig, General Ridgely, &c. to kill a hundred pigs yearly for their own use, to feed their negroes; consequently pigs are there a sort of staple commodity, the same as sheep are in England. In this country, although the profits of a farm do not so much depend on pigs as on other stock, the best are worth every farmer's attention; for, even in a small number, it may be easy to make 40*l.* or 50*l.* a year difference, as every farmer wants some in his fold-yard during the winter.

SECTION IV.

Names of Pigs.

MALE—a *boar*, or *brawn*; when castrated, a *hog pig*, or *gelt pig*.

FEMALE—a *sow*; when castrated or spayed, a *gilt*, or *gaut*.

In the northern parts of England, pigs are generally called *hogs*; and in the southern parts, *shots*. After being weaned, *pig*, or *swine*, is the common name in all counties.

SECTION V.

Use of Pigs in Fold-yards.

Pigs in fold-yards not only pick up the refuse corn, and thrive upon it, but, besides depositing their own dung, they rout the litter about in such a manner as to break the straw, and by chewing a portion of it, especially such as comes from the horse-stables, they must derive some benefit; probably, from the saline particles it imbibes, it may operate as a kind of physic, and prevent the scurvy. In America, they have an idea that pigs' lying on litter is a means of bringing on the scurvy, or, as some call it, the mange; but I think this opinion erroneous, as the disease is most generally seen on poor pigs. When I lived at Slane, our old boar was seen to decline in condition, the reason of which was not readily discovered; but at length he was found to be infested with a prodigious number of very large lice: to rid him of these vermin, we forced him to swim in water, which had the desired effect. But at that time I was not so well acquainted with the cause of vermin infesting animals as now: it clearly arises, in a general way, from bad feeding, which occasions weakness of

blood; for if an animal be ever so lousy, by giving him strong food for a few days, the vermin will disappear; probably rich blood is certain death to them, as they are seen no more, while the animal continues in good condition. This is particularly observable on dogs.—During my survey in Dorsetshire, happening to make some of these observations to a gentleman, he said, he knew I was correct, as he kept many dogs: when the shooting season was over, he fed them on pot-liquor, and they became swarming with vermin of different descriptions; but if he chanced to get a dead horse carcase for them, in the course of four days they would be entirely clear.—We had been compelled to keep our boar on swill alone; for by giving him corn, or better food, he became so heavy, that there were sows, both of our own and those sent to him, which could not bear his weight. The other boar, sent by Mr. Swinfin, got so fat from having about a quartern of oats allowed him daily, that in driving him about a mile in a hot day, he swooned, and appeared lifeless for some minutes; but, by a repetition of cold spring water thrown upon him, he recovered. Fearful that by lowering his food he might be infested with vermin, as the other boar had been; at the same time his weight being so great that few sows could bear him; I was at a loss how to act, as no better care could be taken in ordering the sty than had been with the other boar, the place being clean swept daily, and fresh litter given once a week: however, to reduce him, it being summer, I put him into a grass field, giving him no other support; by this means he became healthy, and no vermin infested him. From those observations I infer, that part of the cause of the other boar becoming lousy arose from his being kept up from the weather; and I am convinced, as before remarked, that rain is as necessary to the well-doing of animals as to

plants. I have no doubt close confinement is unhealthy, as well as weak food; and that if I had kept this boar up, and given him mown grass, he would have become weak and languid, and infested with vermin.

My present opinion, even in regard to pigs in fold-yards, is, that they are better without sties; as I have observed that pigs in good condition may always be seen to choose their bed on a severe snowy night in the middle of the fold: only the poor sort of pigs creep under shelter, and they would be better exposed to the weather. There is a further advantage arises from pigs in the fold-yards lying out; which is, where they make their beds, they rout and trample over the yard litter, mingle the materials, and cause the manure to imbibe a due quantity of moisture, in such a manner as could scarcely be effected by any other means, thus bringing it speedily to perfection. The place where they have lain is seen to smoke, and more so when wet has fallen than at any other time; therefore it would seem they are sufficiently warm: and the excess of wet that falls upon them causes a necessary perspiration, which probably prevents the mange: add to which, by lying in the fold-yard they have fresh straw every night, which would not be the case if they resorted to a sty. I have further observed, that pigs which have sties to resort to, seldom use them; and where the litter from horse stables is thrown out, they always make their bed amongst it. The opinion which is held in America, that stable litter causes pigs to have the mange, may have arisen from litter being very scarce in that country, as the Americans have not straw sufficient even to litter their horses with; therefore, if their hogs are allowed litter, it must serve them a long time. It certainly would seem that Nature ordained pigs should have some kind of bed, as well as other animals.—While I lived with my father, acorns were

one year so plentiful in the woods, that they made the pigs sufficiently fat for bacon without any other food; but although the woods were near enough the house for the pigs to resort to their usual resting-place, they preferred making their bed in the woods, where they collected a prodigious quantity of grass and refuse stuff, and lodged in a thicket: we were so careful as to search out the place, and make a covering to it, which I now think was needless. I have heard various opinions respecting the quality of bacon fed on acorns; but ours was equally as good as that fed on peas and beans mixed, about half one and half the other: we sometimes killed bacon pigs fed entirely on beans and peas; at other times we gave them barley-meal, mixed into paste, to make them up; but there was no perceivable difference in the bacon: however, when barley is not dearer than beans, I prefer the barley-paste at the last, as it is a change, and the pigs feed quicker.

It may be noticed, my two extraordinary pigs were both kept in a house, but the last had plenty of air, (the first was more closely confined), the house being so situated that no one could get to see the animal; otherwise, in both instances, the curious would have been continually disturbing them. On such occasions, the men who have the care of those curious creatures get some reward by shewing them, which causes an emulation on their part, as a portion becomes due to them, and hence they have likewise a profit in the business; therefore I should always prefer an obscure situation, as well on account of quiet, as for the benefit of the feeder: but if, at the same time, the pig could be permitted to lie in the open air, I should prefer its so doing, and also eating its food out of the house. The washing of the last pig with sope may be thought by some persons superfluous; but my reason for so acting arose from the boar being

lousy : when it had been washed with sope and a brush, it was always rinsed with pure cold spring water. I have my doubts whether the first pig's being unable to rise for three weeks in the heat of summer, might not have been remedied by such a proceeding; as it may be seen, in the heat of summer, pigs will throw themselves into water, or mire, and let it run over them.

The pigs I should prefer for the fold-yard would be the same as those I have recommended for other uses, namely, the Berkshire, or other large breed. They are more able to remove the litter, and to raise it; in which there are two advantages; first, in mixing the dung, and secondly, they are more likely to find the loose corn : for, even after the best thrashing, and the fowls, pigs, cattle, &c. have been picking, scratching, routing, &c. when the dung is immediately taken from the fold-yard to the field, some superfluous corns will be seen to spring up, which have escaped them all; therefore the small Chinese pigs are very improper, even in that respect, as they are poor routers : one old Cheshire sow would turn as much or more manure over in a day than twenty Chinese, and even more than a pig of the breed I recommend.

SECTION VI.

Sties proper for fattening Pigs.

THE expense excepted, the more spacious sties are made the better; and they should be formed with folding doors, that the fore side may be opened or shut at pleasure. There should be a fold in front, facing the morning sun, with a post in the middle, for the pigs to rub against: two posts, having a pole between them, in the same form as the roller in the horse's leaping-bar, but not to turn round, would be still more beneficial.

the reason why I would recommend a contrivance similar to the leaping-pole, is, that it may be raised or let down to the height of the pigs, as the rubbing of animals causes a more free circulation of blood, the same as the flesh-brush to human bodies; and I make no doubt but they will feed quicker, as every thing that adds to health and comfort must be productive of benefit: if they itch, and cannot rub, the very circumstance must prevent their lying in a quiet state, and rest is essential to the well-doing of all animals. If the sties were so constructed as to contain only one pig in each, I have reason to believe, from the experiment of my own two pigs, the expense would readily be paid; but there should never be more than two. The flooring should be bricks, or clinkers; if bricks, put edgewise; and the house paved with a descent, as well as the yard, but not so as to render it dangerous in frosty weather, for a fat pig is a very unwieldy animal. The building should be spouted round, that the wet may not fall within the fold; and this for two reasons—to preserve the dung and urine pure, and to prevent the eaves dripping on the pigs. A pig, although it be considered a dirty animal, is seldom seen to drop its excrement or urine in the place where it lies; on this account only the fold is necessary, to keep the house where it sleeps sweet, as any nauseous smell must equally affect its health and the flavour of the flesh. I have had two strong proofs of the latter.—I was out coursing, when a very violent storm of hail came on, and the party were obliged to take shelter in a beast-house, where were some oxen fattening on turnips: the place being close, and hot with the cattle, the stench was almost insupportable. Hearing that a certain butcher had bought one of the oxen, my curiosity led me to purchase some of the beef, which we dressed, but found it not eatable. Another instance of the effect

of stinking food occurred in my own premises: some onion tops were thrown in the fold-yard, where a number of pigs were fattening, and one of them happening to receive an injury from a boar, it was killed and dressed, when the fry was observed to taste of onions; some pies were made with the trimmings of the flitches, which tasted still stronger; the flitches were cured for bacon, and dried, and when it had hung six months a part of it dressed, but could not be eaten.—These two instances convince me that too much regularity cannot be observed in the feeding of animals, and especially those intended for the shambles. The pig had eaten the onion tops the day before the accident happened; the number of pigs was twenty-six, and the quantity of onion tops a bushel-basket full, therefore it seems very little must have done the mischief.

The trough, if peas or beans are given, is best made with a bin to contain the pulse, having a hole at the bottom, and the trough underneath for the pig to eat his food from; the hole being so formed as not to let more into the trough at once than the pig can take in his mouth, which will prevent him from making waste, and he will be more likely to take proper time in masticating his food. The trough for water should have a hole in one corner, to let the water out occasionally, for the purpose of keeping it sweet and clean; which corner or end should stand out of the fold, so that the superfluous water may not run into the inclosure.

SECTION VII.

Disorders or Diseases in Pigs.

THERE are but three diseases in pigs that I know of—the rising of the lungs or lights, the mange or scurvy; and the measles.

The *rising of the lights* is to be known by the pigs' coughing, particular in a morning when they rise from their beds; and, if not observed in time, is very fatal: it is probably an epidemic disease, as it generally goes through the whole herd, and the greater number die. This disorder is not easily accounted for: some breeders fancy it to be in the breed, others in the food; but I have some reason to believe it is in neither. When I lived at Doncaster, there were two farmers of my acquaintance who had their sows of my breed: one lived within a mile of me, sent the sows to my boars, and bought grains for his herd of me; the other, who lived fourteen miles distant, had also a boar of my breed: therefore the herds were all the same as to blood. My pigs, to the number of forty out of rather more than a hundred, were taken with this complaint; the herd fourteen miles off were affected at the very same time; but the herd in the neighbourhood, which was fed the same as mine, remained entirely free: thus it appears to me unaccountable. The remedy I have used is very simple, and has always proved a certain cure and prevention.—Take one pound of raddle of the coarse kind (not ochre, which is a composition used to mark sheep; raddle is a sort of red earth, ground and prepared for paint), put it to about two gallons of swill of any kind, viz. if the tub have any quantity in it, add 1 lb to every two gallons; let it dissolve, which it will readily do, and stir it up well: give this to the pigs, and it will cure all that are still able to eat. It is advisable to give it them again some time after the distemper is stopped, for, by purging them much, it acts as physic. I had a favourite sow, at the time I mention, that was past eating; I attempted to give her the dose, when she seemed to choak under the operation, and died: it therefore seems to me difficult to get any thing, by way of medicine,

down a pig's throat when affected with this disorder. Pigs seem to like this mixture, as those that eat readily take it. When pigs dying of this disease are opened, their lungs are found swelled much larger than they naturally ought to be, look black, and are in hard lumps.

Mange.—Mix sope-suds, after washing clothes, in the swill: this operates as physic, and generally effects a cure:—probably the raddle also might be serviceable. Some persons only wash the pigs with sope externally; but the complaint is internal at first. If they have been neglected, and are very bad, it is a safe way to do both; but I prefer operating on the inside:—if the inside be right, the outside will necessarily be the same.

Measles.—This disease is not observed to render the pigs sick; nor is it discovered until they are killed, when it may be seen in small watery pimples, a sort of eruption, between the flesh and the skin, or rather in the flesh. I believe it is never fatal.

SECTION VIII.

Curing Bacon, &c.

Pigs intended for bacon, should be kept from food forty-eight hours before they are killed, letting them have plenty of water during the time. Some persons scald the dead pigs with boiling water in a tub, which is improper, as the flesh and fat are thereby rendered soft: the pigs should be laid on some flat board, placed in an inclined position, so that the water may drain off, when it will not have time to injure the fat and flesh:—putting them in tubs is a kind of par-boiling. Those who burn off the hair, by covering the pig with straw and setting fire to it, should take great care not to let any part of the skin be burnt. After the pig is dressed, and has hung in some cool dry place for twenty-four

hours, cut it up into flitches, or hams, hands, &c.; then let the parts lie twenty-four hours upon a table in a dry airy situation, when it is necessary, with a clean linen cloth, to wipe off all moisture as perfectly as possible, and if there be blood on any part it should be cut away with a knife. All this properly observed, take 1lb of saltpetre, finely pounded and dried by the fire, 14lb of common salt, also dried by the fire, and with one of the ears of the pig rub the sward side of the flitch first very well, until moistened with the saltpetre; then turn it on the other side, and rub that in the same manner: preserve a small quantity of the saltpetre to put to the ends of the bones, which must likewise be rubbed very well for some time, thrusting the saltpetre with the fingers in among the sinews. This operation performed, the common salt must be applied in the same manner; great care being taken that both the saltpetre and the common salt get well in at every joint or opening, especially about the thick parts of the hams or shoulders. It should then be put in a tub that will preserve the brine, when some salt must be spread upon every flitch, and a little saltpetre on any bone that may appear, covering the top flitch pretty thickly with salt.—The reader will observe, the great art in properly curing bacon depends much on rubbing in the saltpetre, which is of a searching nature, and opens the pores of the skin, fat, flesh, &c. (the fat does not take salt so readily as flesh), thereby letting in the common salt; by which means every part of the meat receives its due portion, and the bacon will not be cured in a partial manner. After the flitches have lain fourteen days in that state, take them out from the tub; then boil the brine, skimming it as it boils, until no scum will rise, and let it stand till cold. The tub must be thoroughly scalded with boiling water, and scrubbed with a brush in all the corners and crevices: when it is dry, take the flitch that was at the

top before, and put it at the bottom (the flitches being previously rubbed with a coarse dry cloth); then, having ready 4 oz. of saltpetre, pounded very fine and dried by the fire, apply that to the fleshy parts, rubbing it on as before directed; after which 7lb of common salt, dried in the same manner, must be applied to every part of the fleshy side. When each of the flitches has undergone this operation, put as much common salt on the flitch that lies at the top as will cover it pretty well. The bacon having been seven days in this state, take it out of the tub again, and lay it on a table so that the brine may drain from it; then hang it up, exposed to the fire, but not too near, for if the fat be melted it will cause it to rust: as the side presented to the fire will become drier than the other, after it has hung about fourteen days it should be turned.—(I have given the foregoing method of drying in conformity with custom; but am doubtful whether exposing bacon to the fire to dry be not always improper.)—When it is sufficiently dry, those who have the convenience of a malt heap put the flitches into a sack, or bag, and place it in the middle of the malt, where the bacon will keep any length of time, without the least rust, dust, or dirt, and the sweetness of the malt gives it a fine flavour and mellowness: this method also preserves it from the fly that breeds the salt-worm or skipper. Some persons, in foreign countries, smear the flitch over with soot and grease, which deters the fly from laying her eggs so frequently; but this is not an entire prevention: those, therefore, who have not a heap of malt, I would advise to take, as the best method, strong rope paper, paste it together, and inclose the flitch, which will not only prevent the fly, but even the wind, from getting to it;—if this be done before any rust appears, there will scarcely be any seen on the bacon, provided it hang in a dry place.—The quantities of salt here given will do for

pigs of from 20 to 25 stone, 14lb to the stone. If the salt be large, it should be pounded.

Persons who prefer smoked bacon must have a smoke-house on purpose. In America all the bacon is smoke-dried, which preserves it from reptiles of every kind, or it would be nearly all destroyed by them; for there are in that country what they call bugs that eat the fat, others the lean, &c.

I have been at a loss to conceive the reason why some bacon becomes more rusty than others; having had two pigs, of the same litter, treated precisely similar in every respect, which proved very different in that particular: but since making use of the paper bags I have discovered that the flesh which does not rust is closer grained. By putting the bacon in paper, and thus keeping it from sun and wind, it all remains alike.

Various opinions have been held respecting the frizzling or burning of pigs, and scalding, for bacon: there appears to be little difference, but I rather prefer the latter, which, with care, leaves the rind softer, and hence the operation of salting is more effectual. To perform this properly, when the hair and scurf are entirely off, throw the pig into cold, clean water, and brush it well in every part; then, the entrails being taken out, wash the inside thoroughly with cold water, and hang the carcase in some airy place, putting a clean linen cloth round it, which prevents the rind from drying, and preserves its white colour:—this is particularly deserving the notice of all pork-dealers. On opening pigs for bacon, it is advisable to cut away what is called the belly-piece, which is of a light, frothy substance, chiefly fat, and improper for bacon: it is also a good way, from very fat pigs, to remove the kidney fat, when the flitch will cool quicker and more regularly. The firmer pork intended for bacon is, the better; the flesh should be of a bright red colour,

and the fat also of a reddish tinge :—meat of this description, when made into bacon, is not so liable to rust as that of a soft, porous nature.

Pickle for a ham.—Take 3 oz. of saltpetre, and rub over the ham ; let it lie till the next day : then take half a pound of bay salt, the same quantity of common salt, half a pound of coarse sugar, a pint of beer vinegar, and a pint of old ale ; boil these all together, and pour the mixture boiling hot upon the ham. Baste the ham with the pickle, and turn it twice a day, for three weeks ; then rub it over with barley-meal, and hang it up to dry.—N.B. This pickle will do for a ham of twenty pounds weight.

This is also a good way of curing beasts' tongues. Or, when the ham is taken out, if the pickle be boiled and skimmed until no scum rises, and beasts' tongues, being first rubbed with saltpetre and then with common salt, are put into it, as directed for the ham, they will be very fine.—But it must be observed, when there is any froth or scum rises to the top, the tongues must be taken out, and the pickle boiled as before, the tongues being rubbed with a little saltpetre and common salt before they are put in again : thus the pickle will keep for any length of time, and cure many tongues so that it is hard to tell them from dried tongues.

The brine that is left in the tub in which bacon has been salted, may be preserved by boiling, and tongues cured with it the same as with the last-mentioned pickle : if not wanted for that purpose, it may be bottled up after being boiled, and used to put in water to boil greens, peas, &c. in : it is also excellent for farmers' use, as a pickle to brine wheat for seed.

Another excellent way to pickle pork, or large bacon.—A deep tub must be provided, made square, of fir or oak, and lined with lead. Every bone should be taken

out of the pork, and every blood vein likewise carefully removed. That done, rub the pork with saltpetre and common salt, in the same manner as directed in curing bacon: then spread common salt on the bottom of the tub, about one inch thick, and lay in the pork close, cover it with salt, fill every crevice or separation, and make the whole as firm as possible: then lay in another quantity of pork, with salt, in the same manner: proceed thus until within about three inches of the top, when the tub must be filled up with salt, pressing it hard down; then put on a strong wooden cover, lined with lead, and made to fit so closely as that not the least air can enter—on this very much depends, as the pork is kept perfect by the air being excluded. Let the tub stand in a cool dry place; and when the pork is taken out for use, always be very careful to cover the remainder with the salt, and press it down. The salt used in this process will remain fit for many other purposes; and if taken out and dried by the fire, it may be repeatedly applied to the very same use for years. For those persons who prefer dried bacon, if the pork be taken out three or four weeks before wanted, and hung up to dry, it will be very similar to bacon so cured, have no rust, nor will the skipper injure it in that time.

An opinion is sometimes held, that the flesh of pigs killed for bacon is affected by the age of the moon;—that if the moon be increasing it will rise in boiling, if declining lessen: but I have killed two pigs on the same day, one of which in boiling has increased, and the other decreased; the difference, therefore, seems to arise from the nature of the flesh.

CHAPTER VII.

DEER.

SECTION I.

The Names they bear at different Ages.

MALE.—First year he is called a *fawn*; second, a *pricket*; third, a *soil*; fourth, a *sore*; fifth, a *bar, buck*, or *buck of the first head*; the sixth, *havers*. Of havers there are three kinds:—two of them are cut at two or three days old, the one way to have horns, the other not; the haver with horns is termed a *full-head*: the other, which is castrated in winter, is termed a *seg-deer*. This latter kind become very poor in the rutting season, and at the age of six or seven years, if not taken up and given corn, they generally die: they grow large horns after being cut, and never cast them; the velvet remains on. The horns of the haver or full-head come off every year, the same as from other castrated deer.

FEMALE.—First year she is termed a *fawn*; second, a *pricket*; third, a *doe*, which she continues.

SECTION II.

Breeding and Management.

THE time the females take the buck, or go rutting, is in October and November; they go with young thirty weeks. It is usual to mark the fawns in the ear, to know their age; and to vary the mark each year,

minuting the mark of every year in a book kept for that purpose, as a memorandum, that their age may be quickly known, and no mistakes made. This mark may be easily put on, as the young fawns hide themselves in a secret place among some cover, such as fern or weeds, and lie in a skulking manner for two or three days, until they get strength; at this time they are castrated or spayed, and consequently minute attention is required in the park-keeper: these are the havers which become fat. The season for killing bucks is from the last week in July till the first week in September or holy-rood day, when they begin to ramp: the season to kill the haver is from the first week in September till the end of the next month; and does from November till Christmas. The skins are worth from 6s. to 12s. each: when they are first taken off, ashes should be put upon them, on the flesh side, and they should then be bung out to dry. The horns sell at 6d. per pound. The velvet, which is the top part of the horns called the palm, is very fine eating for two months; as it grows old it hardens by degrees: when the buck loses the velvet, he becomes burnished. They begin to mew, or shed their horns, about the 20th of April: at which time the male deer swell much in the neck, even to double the size they are at some seasons of the year.

There is generally a master-buck, a sort of king of the herd, as he is the full master of all others. The doe is very delicate in taking the buck; they are seldom seen in the act of copulation. The male and female seldom herd together, except in the rutting season. There is a fawn called a *green-tail*; which, from being a late fawn, or sometimes for want of being fed early enough in the winter season, is liable to skit: it is therefore a bad practice to keep a late fawn, as it seldom attains perfection. The first fawn bred from a young doe is

scarcely ever worth keeping; therefore, when a park is properly stocked, such fawns are better killed. A deer is a very short-lived animal, seldom living to more than nine or ten years old; if not killed before that time, it generally declines and dies.

The food deer are more particularly fond of in the winter, is acorns and haws, beans, or peas: tares given in the straw are good food, and they eat much of the straw. It is usual to feed them with hay when severe weather sets in, but it is seldom given early enough: it is a very judicious precaution, to begin to give them fodder in the early part of the winter, before the commencement of bad weather, or they get poor and weak; and it often happens, if the winter prove severe and long, there is much loss among the herd. A wounded deer will not be admitted in the herd. These animals are very dextrous with their horns and feet in fighting, and very frequently fight; in their manner they but like the ram.

The suet of deer is very good for chilblains, and in different medicaments.—The tail is called the *shingle*; the testicles, the *daruts*; the pluck, the *humbles*; the tharm, the *hinching-pin*.—It is to be observed, the palms are put among the fry, which altogether makes a most excellent dish.

Parks proper for deer ought to be extensive, and poor, high situations; if overrun with fern or weeds the better, to secrete the young fawns: wild thyme and other weeds are the best food for deer, rendering the flesh and fat of finer flavour. They are clean feeders, as may be observed in parks, where are very few weeds to be seen; and they delight in fine, short grass.

CHAPTER VIII.

G O A T S.

SECTION I.

Description of the different Kinds, their Utility and Management.

1st. **T**HE COMMON; 2d. the IBEX; 3d. the CHAMOIS; 4th. the ANGORA; 5th. the SYRIAN:—these are the principal varieties of the goat kind. But there are others of less note; such as the African goat, or buck of Judah, which is considerably smaller than the domestic kind, not being much larger than a hare, though often extremely fat, and its flesh is well tasted: the horns are short, smooth, and turn a little forward. This goat is common in Guinea, Angola, and all along the coast of Africa. In America, there are goats of a similar kind; very small, not much above the size of a kid, with long hair; the horns, which are short and thick, bend backwards so close to the head as almost to penetrate the skull. They are in every respect similar to the dwarf goat found in Africa; and, according to M. Buffon, were imported from that country: however, it is certain, before the discovery of America by the Spaniards, the goat, and every domestic animal, was unknown on that continent.

The *common goat* is an animal well known in England, but very little attention has been paid to its propagation or improvement, which has induced me to write more fully on the subject. From living in Ireland, where they are much more numerous than in this country, I have

found them of essential service, for their milk, to the lower orders of people, or such as are incapable of purchasing, or even keeping, a cow; for although the quantity of milk be little, it is very nutritious, indeed equal, if not superior, to that of any other quadruped: and it is reckoned particularly beneficial to consumptive persons, not being so apt to curdle on the stomach as cows' milk. The average quantity is estimated at from two to three pints daily; but they are frequently known to give milk for two years after bringing forth young, without any decline in the supply: and it is allowed by the people in London who keep them, chiefly stable-keepers, jobmen, and horse-dealers, that if as proper attention were paid to them as to cows, by regular feeding and milking, the quantity might be much increased; and the value of the milk would be beyond all calculation, taking it in a nutritious or medical point of view, as several parts in the north of England, and the mountains of Scotland, are much resorted to by people in a weak, low, sickly state, for the purpose of drinking the milk.

When I lived at Slane, in Ireland, I gave to a servant boy the summer's keep of an old she-goat and her two kids, on a mountain where there were many rocks, which produced furze, fern, brambles, wild roses, moss, wild thyme, &c.: but although there was much fine nutritious grass growing on many acres of the said mountain, which made very fat sheep during the summer, those goats were never seen to pasture on the grass—plainly shewing they preferred weeds and buds of young plants; it seems, therefore, that many goats might be kept by the lower orders of people on vegetables that are now an entire loss, and even a nuisance, such as weeds in the high-ways, hedge-bottoms, &c. Indeed they will eat very uncommon things: I know a lady in London who takes a pleasure in feeding a neighbour's goat with waste

paper, by way of amusement, and the creature eats it with seeming fondness and avidity. Making this remark to a gentleman of my acquaintance, he told me he had kept a goat, and, his trade requiring to the packages directions on paper, with certificates under them, the goat became so fond of the paper, that he ate off the directions and the permits, which threw his concerns into great confusion, and he was compelled to kill the goat. Whether those animals received any nutriment from the paper I am unable to determine.

To return to the boy's goat, I have before mentioned. —During the summer, she reared the two kids and a lamb perfectly well, in good condition. Now, a lamb alone will take three pints of cow's milk daily for two months, and for one month two pints, and not be so healthy, as the milk of cows is very apt to kill lambs; it is too windy, occasioning what is termed *heaving*, in which the lambs will be blown up ready to burst, and many pet-lambs die of that disorder.—(The remedy commonly resorted to is, to run a penknife through the skin, between the huck and rib, into the intestines; which is very improper, although it sometimes gives relief. In the many experiments I have tried with cattle affected much in the same manner, I have found that to gently thrust a cane, with something soft tied to the end, and dipped in tar, down the throat, is the most certain cure; but the young lambs being tender, much delicacy would be required in the operation, or it might break the throple, which I have known happen when a beast has been choaked by a turnip: therefore, a little hog's-lard, goose-grease, or sweet oil, might be better; sometimes a little gin and black pepper have been effectual: but, as prevention is better than cure, bacon broth put in the milk is good to prevent the disorder.)—From what I saw of this goat rearing the lamb, I am persuaded that

goats' milk is more congenial to lambs than the milk of cows : and it seems very reasonable it may, as it is well authenticated that goats are much of the same nature as sheep ; so much so, indeed, that they have been known to copulate—the ram with the she-goat, and the he-goat with the ewe—and the offspring have proved prolific. I rather suppose the goat does not consume more food than the sheep ; she certainly does not require it so good or expensive, and therefore must pay well for her keep ; for, from the foregoing experiment, it appears that goat's milk is in value as three to two compared with the milk of ewes, either by giving more or it of a better quality. The milk produced from animals that are hardy and healthy, it would seem, is more strengthening, instanced in the goat and the ass, which are said scarcely ever known to be sick or ill ; hence the food given to cows must be of material consequence, to preserve their health, that their produce of milk may be wholesome and nutritious to the consumer.

Seeing in a stable-keeper's yard a goat with remarkably long white hair, and very long flat ears, broad and pendulous, hanging down on each side his face, curiosity led me to enquire whence he came : the superintendant told me, he was brought from Egypt, and that he received him as a present from General Grouse. This induced me to wait on the general, who informed me, that when he lived in Egypt he kept a she-goat of the same species as the one I had seen, and she regularly gave him two quarts of milk every day, of a most excellent quality ; and that there were goats in that country which gave three quarts daily. I asked what kind of food he gave her ; his reply was, " In part, the refuse of the house ; bits of bread, biscuit, hay, or what she picked up in the stable, &c."

Goats have a very rank smell, particularly the male ;

and as he grows older, the smell becomes stronger. Most of the stable-keepers in London, and large inn-keepers on the roads, keep goats; having found, from long experience, that the scent of them is conducive to the health of horses, especially during the prevalence of epidemic disorders.

The kid, or young goat, is reckoned delicious eating; some people compare the flesh to venison, others to lamb. The goat in general produces two kids, sometimes three, and in rare instances four. In very warm climates it is said to be more prolific, usually producing four, or even five, at one time. The male is capable of propagating at one year old, and the female at seven months; but the offspring from the female at so early a period is generally weak: the best age is about two years, or at least eighteen months. The common goat is said to be short-lived; full of ardour, but soon enervated: his pleasure in the act of copulation is supposed to be very great; and the buck, or he-goat, will serve from one hundred to one hundred and fifty females.

Goats are remarkably active, and can walk on the roofs of houses, or climb rocks with facility, though their feet do not seem of a proper form to obviate danger; but on more minute examination, they are found to be hollow underneath, with sharp edges.

The *iber*.—This species, if we believe M. Buffon, is the stock whence our domestic goat is descended, being similar in the shape of its body, but differing much in the size of its horns, which are much larger: they are bent backwards, full of knots, and every year another knot is added to the number: some of their horns have been found two yards long. The head is small, with a dusky beard; and it has a thick coat of hair, of a deep brown colour, mixed with ash: a streak of black runs along the top of the back. The belly and thighs are of

a delicate fawn colour. This animal inhabits the highest alps of the Grisons' country, and the Vallais; and is found in Crete. The ibers are very wild, and difficult to shoot; as they always keep on the highest part of the rocks, the chase of them is very dangerous. Being very strong, they often turn upon the huntsman, and tumble him down the precipice, unless he have time to lie down, and let the animal pass over him. They bring forth one young at a time, seldom two, and are said to be short-lived.

The *chamois*.—This, although a wild animal, is easily rendered tame. It is found on rocks and mountainous places; is about the size of the domestic goat, and resembles it in every respect. The hair is short, like that of the doe. In spring, it is of an ash colour; in autumn, dun, inclined to black; and in winter of a blackish brown. These goats are found in plenty on the mountains of Dauphiny, Piedmont, Savoy, Switzerland, and Germany: they are very gentle, and are gregarious; companies of from four to four score, and even a hundred, are seen dispersed on the crags of mountains. The large males are observed to feed detached from the rest, except in rutting time, when they approach the females, and drive away the young. The time of their coupling is from October till the end of November; and they bring forth in March and April, which is about twenty-one weeks—the same as sheep: the young remain with the dam for about five months, and sometimes longer, if the hunters and the wolves do not separate them. It is asserted, they are longer-lived than most other goats, and that they live between twenty and thirty years. Their flesh is good to eat; and they yield 10 or 12lb of suet, which far surpasses that of other goats in hardness and goodness. The *chamois* has a feeble cry, or bleat, when it calls its young, except in cases of danger; upon any

alarm it makes a hissing noise, with such force that the rocks and forests re-echo the sound. It strikes the ground with one fore foot, and sometimes both feet, the same as the rabbit. The hissing of the male is much louder and sharper than that of the female, and is a kind of blow through the nostrils. Its eye is remarkably quick; and smell not less distinguishable, as it can discover a man at half a league distance. The chamois feeds on the best herbage, and chooses the most delicate parts of the plant; it drinks little when feeding on moist food, and chews the cud. Its head is furnished with small horns, about six inches long, of a beautiful black, rising from its forehead almost betwixt its eyes: contrary to those on almost all other animals, instead of inclining backwards, or sidewise, they stand forwards, and bend a little backwards at the extremities, ending with a very sharp point; (the natives of the countries where they are found have been known to bleed cattle with them). The ears are placed in a very elegant manner, near the horns; and there are two stripes of black on each side of the face, the other part being of a whitish yellow, which never changes. The horns of the female are less, and not so much bent. These animals are greatly incommoded by heat, so that they are never found in summer, except in caverns or rocks, in fragments of unmelted ice, or under the shade of trees: they pasture early in the morning, and in the evening, being seldom seen in the heat of the day. Hunting them is extremely difficult; the most usual way is to shoot them. The skins were once famous, when tanned, for their softness and warmth; at present, as the art of tanning is brought to greater perfection, the leather called *shammy* is made also from those of the tame goat, the sheep, and the deer.

The goat of *Angora* is well known for its long hair,

which is thick, glossy, of a dazzling whiteness, and so fine that cloths made of it are as beautiful as silks, known among us by the name of camlets. Its ears are long and pendulous. The male is furnished with horns curiously twisted, which proceed horizontally from each side of the head, in the form of a screw: those of the female are shorter, and encircle the ear, somewhat like those of the common ram. These animals inhabit the rocks and mountains of Pontus, where they experience a considerable degree of cold; and might thrive in Britain, as well as in their native country. The same might be said of the goat of Thibet, so famous for the fineness of its wool; it lives in a climate colder than ours in the winter, and might probably be transplanted with success.

In Portugal, there is a breed of fine large goats, remarkable for producing great quantities of milk—a gallon and a half a day. These, if introduced to our navy, might be of infinite service in long voyages: and, as they might be bred on the rocks, mountains, &c. it would be applying those sterile parts of the united kingdoms to a useful purpose.

The *Syrian goat*, which M. Buffon makes a variety of the goat of Angora, differs from ours in nothing more than the length of its ears, which are pendulous, and from one to two feet long; they are often so troublesome, that the owners are obliged to cut one off. Their horns are short and black. They are very numerous in the neighbourhood of Aleppo; and supply the inhabitants with milk, which they prefer to that of the cow and buffalo.

It is necessary to observe, that although the value of goats is equal to that of many other domestic animals, and they may be worth propagating on heaths, rocks, and mountains, they are so destructive to fences, for

which they have a great fondness, that it would be impossible to keep them in inclosures without their doing much damage, unless they were confined, and fed on the refuse that other animals reject. But they might be bred on such wide spacious commons as those in Westmoreland, Cumberland, &c.; when, as it seems, from the best information, they delight in being on the tops of hills, they would seldom approach inclosed grounds. In Ireland, where many are kept, on small potatoe patches, highways, &c. they frequently have three of their feet tied together; notwithstanding which, they are continually in mischief, breaking into corn-fields and pastures: but I do not remember ever seeing them feed either on the corn or grass, but were constantly picking the hedges: and in plantations they are equally as bad as race-horses, for peeling off the bark of trees. It does not appear to me, that, as has been supposed, the white-thorn is a particularly favourite food of the goat; for though there was a new-planted white-thorn fence in a valley near where I mentioned a boy's keeping the goat and kids at Slane, I have good reason to believe they never went near it, but remained continually on the tops of the rocks.

It seems, from the preceding information, that there are three species of goats more valuable than the common goat;—the Portugal, for milk; Angora, for its long fine hair; and the Thibet, for its fine wool. The Switzerland skin, too, is superior to that of our goat for tanning. All these kinds seem worth importing.

Note.—For further information on this subject, the reader is referred to BEWICK's "*History of Quadrupeds*," from which some extracts for this part of the work have been taken.

SECTION II.

Goat Skins tanned in England, and used for the Lining of Coaches, Chair-bottoms, Ladies' Shoes, &c. &c.

THE following are different sorts of goats' skins tanned for the various purposes, with the price in the raw state of the best of each kind.—1st. English, 6s. each; 2d. Scotch, 5s. each; these would be worth more if they were properly dried; they ought to be cured with wood ashes (see buck skins, page 283): 3d. Irish, worth the same as Scotch, 5s. each: 4th. African, Barbary, from the port of Mogabore, 4s. each: 5th. Switzerland, worth 7s.: and some more.

A goat skin at 4s. when made into blue or purple leather, is worth 10s., and takes 10*d.* of American indigo in the dressing; when made into red leather, it is worth 11s., and takes 18*d.* of American cochineal.

Some goat skins are brought from Egypt, but they are worth very little: there is a worm, somewhat similar to that called the warble-worm in the cattle in England, and is at times found on horses, which eats holes in the skin, and between it and the flesh, thus nearly spoiling the skin of the Egyptian goat.

CHAPTER IX.

R A B B I T S.

SECTION I.

Lands proper for Warrens, and Means of improving Land with Rabbits.

THE land most proper for warrens is such as is of a barren nature, growing only short grass, as rabbits will thrive and prosper better on such land, if it be but dry, than on much richer. Wet or marshy land is by no means suited to breed rabbits on. The most suitable soils are sand or gravel, and chalk-stone of a light nature; in which rabbits can form their colonies with ease; and being dry and warm, are comfortable to their young. They cannot burrow in clay or any cold soils; and such soils starve their young to death: land that abounds with moss suits them, to make their beds on. Rabbits thrive best on lands composed of hill and dale, and open to the morning sun: for although they are more hardy than many other animals, and will live and fatten where all other kinds of stock would starve, the least wet or cold kills their young; but when land is formed in hills and valleys, they instinctively fix themselves on the sunny side of the hills, generally low down, if the soil be not wet. Rabbits are of a very feeding nature; they will fatten in dry frosty weather much more readily than in mild moist weather: hence the saying—a rabbit will be fat and lean in twenty-four hours.

Rabbits have numerous enemies, and, being almost incapable of resistance, their safety depends on swiftness of foot, and on the facility with which they burrow in

the ground; but many of their enemies, such as fumarts, weasels, polecats, foxes, badgers, &c. even follow them in their holes; they are also subject to the ravages of ravens, hawks, gleads, &c. Rabbits are likewise extremely tempting to poachers; and notwithstanding they are now constituted private property, they still, from their wildness, remain, as it were, the property of the public; for if the poacher only get them off the premises, they cannot easily be sworn to. Thus they require the most strict attention from the owner, both by day and night. Rabbits are certainly of a most extraordinary nature, as they will live, and even fatten, where to the eye there is little vegetation; and they seldom want feeding, except when the ground is rather deeply covered with snow, at which time hay is very generally given to them. For this purpose, it is a good way, in the summer, to place small stacks of hay near the burrows (as the burrows are, or ought to be, in the middle part of the warren): the stacks should be surrounded with a sod wall or bank, to keep the rabbits from them. This mode would not only be convenient, to feed the rabbits during severe weather, but be a sort of temptation to keep them near the place; as they are very apt, when the snow drifts, to run over the banks, whereby the owner may sustain very great loss, as it is almost an impossibility to get them in again, if they are not destroyed; but almost every one will kill a rabbit who can catch it: and those places where the stacks have been, make excellent burrows after the hay is removed, and the bank thrown down. But turnips are the best food for rabbits, as they will find every morsel: hay, when the snow drifts, is liable to be lost. Ash-tree boughs are another very good food, as rabbits are remarkably fond of peeling and eating the bark: thrashed oats, or barley, are also good for rabbits, when the price will admit.

There are many thousand acres of land in this kingdom that Providence seems to have appropriated to the breeding of rabbits; which shews the wisdom of the great Creator, in forming animals and land to suit every purpose, and marks the ignorance of those men who, having such land, do not put it to the use for which it was intended. For the better information of those persons who have land not worth more than from 12*d.* to 3*s.* an acre in its present state, and are in no hopes of improvement, I will give a sketch of a warren, from the first inclosing, the stocking, produce, &c.—I will suppose there are one thousand acres to be inclosed; then the method of proceeding would be as follows, viz. the fence is made of sods (or stones, where they are to be had), which are generally called sod-banks; for which purpose the sods are cut square, from fourteen to sixteen inches one way, and about ten or twelve the other, as thick or deep as the soil will admit; they are laid with the grass side downwards, one upon another, crossing each joint in the same manner as bricks are laid in a wall. The banks are made two sods thick, a long sod being laid across at times (like a key-stone): thus they are raised about five feet high, the last, or top sod, projecting a little outward, on which is placed what is called a *beard* of furze or black-thorn, so as to over-hang the face, or fore part of the bank next the warren, about twelve inches, and of sufficient substance to hold together, a large sod being laid upon it, which is called capping;—this is done to keep the wind from blowing the beard off: it also preserves the wall or bank from the weather, and prevents the rabbits from getting over: small bushy black-thorns make very good beard, when they can be obtained. Sod walls cost 2*s.* a rood; furze faggots are 14*s.* a hundred—one faggot will do three feet; laying on, and capping, 3*d.* It is said those banks will last

from five to fifteen years ; indeed, they have been known to stand twenty, by facing them once in seven years, at half the first expense : however, they will last, on an average, seven years, with very little repair.

It is calculated, that one thousand acres, made into a warren, will carry a stock of 2500 couple of rabbits, and some sheep in summer ; and the produce of that stock will be about 5000 couple to kill, on the average : this on land supposed to be worth about 3*s.* or from that to 5*s.* when used as a warren. The produce from rabbits only seems to be about 600*l.* a year ; and there might be 200 acres carried on to convertible purposes besides :—this more fully explained hereafter. One buck will serve 100 does ; the doe takes the buck the same day she brings forth, and goes thirty-one days with young : the young are eleven days blind after being kindled, and eleven more before they make their appearance above ground : the doe suckles the young twice a day, for about twenty-one days. The time of killing is from about the 20th of October till the 25th of December, about ten weeks ; one week preparing and leaving off ; laying up nets, pricks, &c. one week ; twelve weeks in all : the skins are in full season during this period. In regard to the skins at all other times and seasons :—the rabbits begin to breed about May ; the young then kindled undergo no change from their white colour, but from a white rack become a whole skin : those bred at Lady-day become black : those in June, white : in July, black ; at the latter end of November, white again ; being then in full season, and the carcase also. The skins ought to be white, without a black spot, on the flesh side, when flayed and taken off. The colour of rabbits varies much ; —many are grey, nearly the colour of hares ; some what is termed silver-haired, that is, black with white hairs intermixed, which makes them look blue ; a few have

white hairs, mixed with a darker colour, nearly black; and others are a rather light dun, similar to some mice. The quantity of food required daily for the breeding stock, being 2500 couples, would be two tons of saintfoin hay, which is the best, red clover excepted; or three large waggon loads of turnips: but they never want feeding until the ground has been covered with snow for three days together, when they must be fed. Turnips are the best food, as rabbits are remarkably fond of them, and though the snow keep falling ever so deep, they find them by the smell. When rabbits are confined in warrens, they seldom breed more than twice a year, and some of them only once: in particularly wet, cold seasons, few or none bring more than one litter.

The best manner of taking rabbits is, by folds; which is effected in the following manner, with nets and cords: (the nets are sixty yards long, and generally cost about a guinea and half each; they will last, with great care, seven years):—The day before the rabbits are intended to be taken, the nets are put up with small prieks, about three feet and a half long, generally made of hazel, the thickness of a moderate-sized walking-stick, the thickest end being made sharp; these are placed at proper distances: the nets have a cord run through the top and bottom meshes, so as to keep them, when drawn out, extended in a direct line: the line is twisted round the top of each prik, to bear the net, and keep it straight; at the bottom part there is a short prik, with a hook, to hold the net down. In this way the warrener, with his assistants, incloses many acres of ground, on both sides the fold, the bank generally making one end, and sometimes part of a side: if there be any defect or weak places in the bank, it is proper to run a net there, as the rabbits will make every effort to get away, when they find themselves confined from their home: the fore part of the

fold is left entirely open. Rabbits take their food chiefly in the fore part of the night; and having, by instinct, a knowledge of the weather, if it be likely to come rain or snow, &c. they will quit their burrows so early as to satisfy themselves before it is late enough to run the nets across; for they form their colonies in some part altogether at a distance from their feeding ground, and nearly all leave their home or burrows at the time of feeding, when the warrener fixes his nets, by two men beginning at each end, who meet in the middle: thus, in fine, dry weather, they can nearly take all that is wanted at once; but it is a general practice to fold at two separate times, from each colony. Rabbits have a signal to denote the approach of danger, which is, a stamp with the foot on the ground; when this is given, the whole number will set off, and run to their burrows: therefore great silence is required at the time of inclosing the fold. After the fold is inclosed, there must be a watch kept the remaining part of the night; for if the rabbits were to make a breach or hole, which they will sometimes do by eating the nets, many of them would escape; and they are more difficult to take after a first attempt: the watching is also essentially necessary to guard against poachers. Within the fold are formed what are termed angles, in that part nearest to the burrows; as the rabbits, when they return and find themselves checked in getting home, will beat about by the nets: these angles are, therefore, so contrived, as to afford them an opportunity of secreting themselves, and are made in the following manner:—an angular groove or channel is cut, about twelve or fourteen inches deep, and about twelve inches wide; the sods being set up one against another, over the groove, so as to form a ridge, like the roof of a house: these channels are made of equal lengths, both ends being left open, so that when the rabbits meet they

are head to head; thus their back parts are next to the man, and he takes them out by the hind legs, which renders the killing of them more speedy, as the method is to break their necks. When the rabbits find themselves prevented from returning to their former homes, and the day-light appears, hearing the warrener and his dogs enter the fold, they quickly run into the angles, by way of security from the dogs, &c.: the greater part of the rabbits having got into the angles, the warrener puts a sod against the open ends, to prevent their return: the few straggling rabbits remaining in the fold are hunted by boys with dogs; but the warreners have recourse to that method as little as possible, the dogs being apt to tear the skin, and injure the carcase. The method of taking them from the angles is, for a man at one end of the angle first to remove the sod, and draw out all he can reach; another man then, with a spade, cuts away a part of the sods that form the roof of the angle, and takes all he can towards the first man; then the first man cuts another part in the same manner as the former, always cutting those places at such distances that the two men at each end can make their hands meet from one opening to another: by this method of taking rabbits, the warrener can preserve the best rabbits of such colour and make as he likes the best, the same as choosing sheep in a fold, as they all go through his hands: those let go are generally marked on the ear.

It will be seen, that wet nights and bad weather are much against the profits of the warrener: such seasons are so bad for taking rabbits, as sometimes to occasion the same colony being folded three times, and improperly taken at last, as the warrener wishes to kill every weak, bad rabbit; for it is with rabbits as with other animals, the best bucks and does are the most valuable breeders. A weak, bad doe, occasions more harm than good; so does

even a buck: for if the winter prove severe they probably die, and putrify in the burrows, thereby rendering them disagreeable to the others; or should they live, they breed to no profit: therefore a good warrener is very circumspect in killing off his stock. The number of nets a warren of the size above mentioned requires is about twelve.

There is another method of taking rabbits, called *tipping* them; which is thus effected:—a hole being made in the wall to let the rabbits run through, there is a kind of house or den to receive them, with a sort of pit, and a *tip* so fixed as to let them drop in. By this means restless rabbits are taken; and often a number of bucks that can well be spared.

The expense of managing a warren is trivial, compared with almost any other application of such poor soils.—A warrener, at about 20*l.* a year, and two cows kept for him: three killers, at from 8*s.* to 9*s.* a week and their board, which is not costly at that time, the carcasses of the rabbits being their chief food. The expense of the four men for twelve weeks, at 8*s.* 6*d.* a week, amounts to 20*l.* 8*s.*: the rent, at about 5*s.* an acre, will be 250*l.* a year; assessments, and other parochial charges, 2*s.* in the pound: the nets, traps, powder and shot, about 5*l.* The number of rabbits sold annually being about five thousand couples, valuing the carcass at 1*s.* a couple, and the skins at 1*s.* each, the amount will be 750*l.*; and the sheep and cattle kept on the warren in the fore part of the summer may be taken at 100*l.* The whole brought to account will stand as under.

	<i>Expenses.</i>	<i>l.</i>	<i>s.</i>	<i>d.</i>
Rent		250	0	0
Assessments, &c.		25	0	0
Warrener's wages		20	0	0
Two cows' keep		10	0	0
House rent		1	0	0

	Brought forward . . .	306	0	0
Four killers		20	8	0
Nets, traps, &c.		5	0	0
Profit		518	12	0
	Total .	L. 850	0	0

	<i>Produce.</i>	<i>L.</i>	<i>s.</i>	<i>d.</i>
Rabbits		750	0	0
Stock kept		100	0	0
	Total .	L. 850	0	0

The foregoing being nearly a fair statement, will shew the reader, at one view, the means of applying money to waste, barren land, and enable him to draw a comparison with what it makes in any other stock; for, from the high price of labour, the horse tax, &c. there is poor encouragement to attempt the cultivation of such kind of land under the general plan of agriculture, as it rarely happens that poor land makes rich farmers, by corn crops, turnips, seeds, &c.: but, in a general way, the rabbit-warren farmers, with very moderate management in other respects, have raised their families to a state superior to that of other men, with equal capitals, on similar farms applied in a different way. I have heard my grandfather, who was one of the beginners of warren farms in the county of Lincoln, say, that he had rather have the profit arising from a good doe rabbit, than the best ewe on the farm. Rabbits come very quickly to profit, there is little danger of loss, and not much expense in keep, as they are produced chiefly in May and June, and slaughtered in November and December: they eat very little during the first month, and not much the next; consequently there is little more than four months' keep, which is one great cause of the

profit being so great:—not like raising oxen, drawing them till seven years old, and then fattening them on corn and cake, costing as much in fattening as one third of the money they produce. The quantity of flesh rabbits raise is also very considerable; as 10,000 carcasses, averaging them at 2½ lb each (a good carcass will weigh more than 2½ lb), is 20000 lb weight—equal to 250 sheep at 80 lb a carcass: thus, considering the produce of sheep to be kept three years, it is equal to 750 sheep every year, from 1000 acres of poor land, that would not fatten a single sheep; and the produce of the rabbit skins, 500*l.* annually, is equal to that of 2000 sheep's fleeces, at 5*s.* a fleece. However, there are various opinions on the application of this kind of land to rabbit warrens; some persons contending that it might be rendered more beneficial to the public, as it only employs a few people: but it is to the production of food that man's labour ought to be applied; and is there any other mode by which so much human sustenance could be procured from such land as I have mentioned? It would often happen, that the farmer would sow much, and reap little; indeed, the cultivating land proper for warrens is often labour in vain—a total waste of time and money. Again, although on the spot where the warren is formed there are but few people employed, the trade their skins create in all probability furnishes business for at least as many people, acre for acre, according to its value, as is afforded by some more fertile lands, that are entirely applied to the fattening of oxen; for which purpose there are many acres, in some counties, of convertible soils, used, in my opinion, much more to the injury of the public. I know some fertile convertible farms, each containing from six to eight hundred acres, of which not more than from forty to one hundred are tilled; whereas, if such farms were divided into two-hundred-acre farms, the whole

number of acres would employ twenty times the people, and bring a proportionate increase of produce to market. The rabbit warrens also generally keep a number of sheep during the summer; while it appears two or two and a half rabbits live on this poor barren land in the winter on one acre, without any support in open weather, and requiring very little, considering their value, in severe winters: thus, at the proper season, they get remarkably fat, and are delicious flesh, with, in general, no further expense, than the produce of land on which any other stock could barely exist. It appears clear to me, that the land was given to man for his use and amusement, with plants and animals proper for his benefit and support; he ought, therefore, to study their several qualities: and there is not a more striking instance of the wisdom of Providence than in the rabbit, which is peculiarly suited to barren land, that will scarcely support any thing else. But, poor as this land is, it is generally of a convertible nature, and will, with proper management, produce crops to profit after rabbits have been pastured some time upon it: in fact, the same management is required, in some measure, for the benefit of the rabbits, as other convertible soils of a superior description require for the use of sheep. To manage warrens properly for the better doing of the rabbits, it is necessary to pare and burn, sow turnips (about two crops), get two crops of corn, and then lay the land down with seeds: the quantity at one time must be proportioned to the size of the warren, and the quantity of convertible land it contains. There will generally be some profit attached to the tilling of this land, but the greatest advantage will arise from its keeping a double stock of rabbits, and those in superior condition: a fresh piece of land that has been first taken off, and treated in the manner described, should be thrown into the warren every year, or

every two years at least. I look upon it there are thousands of acres of land a degree better than this I mention for rabbits, that are now used for the production of seeds and turnips for sheep, by which the farmer very often is scarcely paid for seed and labour by the corn he raises; but where he does get paid, it is by the sheep eating the turnips, as the fresh seeds will keep as many sheep in two years under that process, and better than the land would support, lying in its natural state, for ten years:—the very same practice ought to be adopted with rabbits.

The rapid progress made by Mr. Grant in the farming business, at Withcall, chiefly proceeded from his taking that large warren, and treating it in the manner here projected; as the farm had been occupied by men of property and ability before, who were not seen equally to prosper, although the land was stocked with rabbits at the time. That large warren was all fresh land, and ready prepared to his hands, Mr. Rinder having pared and burned several hundred acres, and taken only one or two crops from some. But the profit on that land, at the time it was laid down, arose more particularly from first eating the turnips with sheep (when the land was in seeds for two years, probably the first year's seeds would keep well, for two or three months, four or five ewes and lambs an acre, though in its natural state four acres would not support one ewe and lamb properly), and then throwing down the banks, and letting in the rabbits: thus, probably one acre kept more rabbits, besides sheep, cattle, and horses, than ten acres did before that process. The banks made such excellent burrows, and the rabbits were so much better fed, and consequently stronger, that, instead of breeding only once a year, they would breed twice, or even three times. I have heard Mr. Grant say, when he looked at the farm at

Withcall, he could see money lie like stones—it was there for shoveling up.

I have read in some author, that rabbits do not improve land. The sort of land where rabbits thrive the best can scarcely by any means be cultivated to profit for a continuance; as it ought to be a deep, light, poor soil, to exactly suit them: but those who wish to make proof of the excrement of rabbits as dressing for some crops, particularly red clover, will find their dung very near, if not quite, as strong as that of pigeons; and if it do not in some measure improve the land where dropped by the rabbits, it can only be accounted for in a chemical way, by its not acting in conjunction with such soils. But old rabbit warrens, when first broken up, generally bring good crops; though the sort of land suitable to rabbits grows a kind of grass that can never, on the same soil, be made to fatten an ox, or rendered proper for meadow hay. I am of opinion, from experience, that if a given quantity of the dung of rabbits be put on a piece of strong cold earth before Christmas (red clover I have seen it tried upon), and the same quantity of any other dung (pigeons' dung excepted) be laid on another equal portion of land, the former will be of the greatest benefit to the crop, if the quantity of either do not exceed twenty bushels an acre. I can only account for rabbits' dung in warrens not improving land, from generally dropping their ordure near their burrows, or even in them, where it is no more seen: it often happens that the burrows are formed on the sides of hills, in scalp places; and as they feed chiefly in the fore part of the night, and then very quickly, they may not frequently drop their dung at the time, as they seem to eat in one place and deposit their excrement in another. When they do drop it near the burrows, there is no telling whether it be of service or not, as they keep the grass so short, that the sun's

power exhales all the saline particles from it, and burns the very grass roots up. Any very strong manure laid on land towards the summer months has a similar effect; the experiment has been fully tried on the meadows near London. If night soil be laid on meadows, even of strong clay, in the fore part of winter, and a hot spring and dry summer follow, the grass roots will all appear dead, and not be seen to grow until the autumn; therefore no benefit will arise from the proceeding. Rabbits' dung may have a similar effect on the light ground where it is dropped.

But there are some lands, well suited to rabbits, that grow a rough kind of grass, called shire-grass, of which neither the rabbits nor any other animals eat much; yet being a sort of cover and preservation to the rabbits, it proves pleasant to them. There are other lands, of a sandy nature, which grow moss, are warm, and cause rabbits to be very productive: when warrens are managed in a convertible way, this is the most proper land to pare and burn, always bringing good crops of turnips, and full crops of barley, oats, &c. for a short time, though 'it may not be proper to produce the best of grain. As land taken from the warren does not want manure for the space of four years' cropping, there is great advantage derived from the proceeding; for those crops, taken to the fold-yard, add much to the dung-hill, for the benefit of other lands on the farm; and the turnips are of very great use to the sheep; while the straw of the corn crops supports some store cattle, and sufficiently repays other land for the hay, or turnips, which, on particular occasions, they have borrowed of the farm. But when laid down with seeds, although intended for the rabbits, they must not be let upon it for the first two years, as, being so fond of young seeds, they would inevitably destroy the very roots: having

teeth at both top and bottom, they bite so very close, that young plants cannot withstand them; therefore, the roots should be strong, before the rabbits are pastured on the land;—which is another great advantage to the farmer, as he gets the best of the produce, either in hay or pasturage for sheep, off the land, and the rabbits still do well, when scarcely any other stock would live upon it. After the rabbits have been pastured for some years, they render the soil fit for a repetition of the same course.

There have been very great mistakes made, by totally destroying old rabbit warrens all at once.—When I was at Mr. Coke's sheep-shearing, in Norfolk, I stopped two days with a very intelligent gentleman farmer of that county. Having rode quite through the county, and it being a dry season, I had seen many unproductive crops, that could never pay for ploughing, sowing, and reaping, there being very large tracts of this kind of land together. I observed that rabbits would pay better, with less ploughing, in the manner described in this work, in which he agreed with me. At the same time, if part of the poor barren lands that were in rabbit warrens had been broken up, and thrown down into warrens again, it would have been much better, and kept a stock of rabbits; as much of the sand land in that county is too poor to support sheep to be profitable. Although the claying (or, as it is most erroneously termed, *marling*) process was of much service at first, when there was vegetable matter in the land to work upon, by rendering the soil more cohesive and tenacious, consequently retentive of moisture, and caused it to bring some good crops, when all the vegetable matter was exhausted, it became a mere *caput mortuum*; but, in this reduced state, it would still have kept rabbits, and in time would have recovered itself, and borne the same course of crops as before. The number of rabbits

would have been reduced for six years; but after that time there would have been as many, if not more: as it may be seen in the county of Lincoln, where the convertible system is acted upon, that, by being fed on two-year-old seeds, and with other better management, one of the Lincolnshire rabbits is fully worth one and a half of those in Norfolk, which are kept on the old land, unimproved. The part ploughed after the first return, would have been like that quantity of land given to the farm; and as rabbits, some winters, require fodder during deep snows, and turnips being found the best substitutes, those grown on the land would have supplied the rabbits, without robbing the farm.

But, notwithstanding the various arguments I have stated in favour of warrens and rabbits, there are many objections.—They occasion a dreary appearance, if near a gentleman's house, for the fences, being sod walls, have a barren look; and there can be no plantations properly raised. Warrens are a great detriment to all field diversions, as there can be little or no game kept in such places; even fox-hunting is prevented, by the warreners destroying the foxes. They are also disagreeable to the neighbourhood, in encouraging many night hunters or poachers: the very killers who are hired one season to assist the warrener, the next season, if they do not meet with employment, will be the first to rob the warren, as they become acquainted with every private concern in the management, and therefore are enabled to commit depredations with greater ease than strangers; on which account, when employed, they are bad to trust, and will do all they can to screen depredators. For these reasons, the occupation of such farms is not comfortable. They, at the same time, require very minute attention during all seasons of the year, even in the summer; for although the skins are worth but little when out

of season, sixteen for one prime skin, yet the carcasses are always in request. It is necessary, too, to inspect the fences daily; for if there be a breach in the bank, and one rabbit get out, many will quickly follow: the mischief does not even end there, as it makes the stock on that side of the warren restless, and they will be beating about against that part of the banks to get out; and if the land adjoining belong to another farmer, he is sure to kill them for his own use, and for very just reasons, as they are very destructive to most crops. But there are many things to balance against the latter objection. The rabbit is extremely prolific; I have seen nine in one nest: and I have heard it very well authenticated, that one buck and doe hare being put into a small park, to ascertain their produce, there were, with the two put in, thirty-five turned out at the end of the year. I think, therefore, notwithstanding, with the utmost attention, there is great destruction made in the young brood of rabbits, that they will raise nearly double the rent of a farm; for the time of killing is when labour is cheap, and the farmer's horses are then more at liberty than at any other season of the year to convey them to market.

I observe Mr. Young, in his report of the county of Lincoln, says, Mr. Piers, of Blankney, informed him, that if a warren were stocked with half grey and half black rabbits, in five years there would be none but greys: from this information, it would seem that the silver-haired rabbit is tenderer, or not so prolific. Mr. Grant, of Withcall, has likewise stated, that what he calls the silver *spray*, which I apprehend are the silver grey, have been tried in other counties without success; if so, they may even not do so well in some parts of the same county. I have frequently assisted an uncle of mine on the killing days, but I never heard any observation of

the kind, though the silver grey was the favourite at that time; and he was as circumspect in the choice of a buck rabbit, as breeders of sheep are in their rams. I do not remember seeing any of the silver-haired rabbits in either Norfolk or Sussex. The warrens I saw in Sussex may properly be called flesh warrens; for when I was there, in August, it was their killing time: I enquired the reason, when a warrener told me, the rabbits would all pine to death before their skins were in season: but there are acres of land in that county which grow only fern, with scarcely any grass to be seen.

The customary mode of selling the year's slaughter in Lincolnshire was by the hundred, containing six score; at, for the last ten years, 13*l.* the hundred. The buyers were chiefly shop-keepers, who made a kind of trade of it, employing men to keep stalls in the different markets to sell the carcasses. It is now become most common for the rabbit farmers to send their stock to market, and retail the carcasses themselves, preparing the skins for the London market; for this latter purpose they have a drying-room, with a small charcoal fire, and conveniences for hanging the skins up to dry, a proper person being employed to clear off the fat. This process takes about five weeks before the skins are cured, and ready for market. I apprehend this is a profitable proceeding, as many men who have followed this rabbit-jobbing business have amassed very large fortunes.

I have mentioned land proper for warrens in a general way; but there are some of those soils more valuable than others. The lands in the county of Lincoln, of which the principal of the warrens are formed, is a sort of black light earth, with a chalky bottom, and often a flint in the surface soil, having what the farmers in Dorset term its winter coat on, viz. a thick white cover, which is an indication of a very barren soil. This black land is very

deceiving to a stranger, as it is often of considerable depth, much deeper than the plough commonly goes; and when this kind of land is put under tillage, from its black, mellow appearance, and fine mould, many useful crops might be expected: but, possessing a natural dryness, giving free admission to moisture, and not cohesive enough to retain it, by affording the sun and wind great facility of exhalation, and withal being of a very poor nature, most useful plants pine away, which renders it so peculiarly suitable for rabbits. Some of this kind of land, where the soil is thin, near to the chalk, will bring good saintfoin; and from the nature of gypsum, under proper management, I am of opinion it would be found a good dressing for that crop. Last year, when I was at the house of a gentleman farmer who has a small quantity of this sort of land, not sufficient to make a warren, remarking on the idea I had advanced in my first work, of the sow-thistle being so excellent for sheep, he said, he had sown some turnips and rapes on a piece of that kind of land; little of them produced, but there were many sow-thistles: being a ram-breeder, he put some ram hogs on the plot, to eat the few turnips and rapes, when he had observed they were very fond of the thistles, and improved much on that keep: he further said, if he knew where to get the seed of that thistle, he would sow it, instead of turnips and rapes, the next fallow he made on that kind of land, being of opinion it would be one of the best green crops he could raise. Now, this gentleman's observation shews that divine Providence has ordained that even this very poor land should bring a most luxuriant crop of vegetable food for the animal best suited to it; as I suppose there is scarcely a plant equal to the sow-thistle for rabbits: and could it be contrived by the rabbit-warren farmers, to have a field of sow-thistles to let the rabbits into in the months of Septem-

ber and October, it is probable it might be a means of raising the young brood to be larger, and be a sort of supply similar to the second crop of clover for sheep. There is another kind of soil in this county, which is yellow, having nearly the same properties for rabbits as the above; though to a stranger it look like a loam, it is equally as deceiving as the black earth. But those parts of the county possess some very valuable advantages, with regard to rabbits, that many other warm sand lands do not, particularly by lying in hill and dale: on the sides of hills the rabbits must lie drier, by having a greater depth of covering. When riding over Brand warren, in Norfolk, I have conversed with the warreners; from whom I learned, that the land being so level, and all a light soil, so that the rabbits can burrow in any part, they are prevented from taking them in folds, and are obliged to use traps, ferrets, and purse-nets, which must be both expensive and occasion great loss, and at the same time be an uncertain mode of taking them; add to which, if the traps are not very well watched, the vermin are liable to destroy them: and it sometimes happens, when rabbits are caught in a trap, that they, by endeavouring to make their escape, pull off a leg, and get into a hole, which is a total loss. By this method, too, the best are as liable to be caught as the worst, therefore the breeds of rabbits cannot be improved as they are in Lincolnshire; nor can they be so productive: but when taken in folds, the warreners are particularly mindful to kill all weak rabbits, and preserve only the strongest and best.

For the information of persons interested, I will relate some of the tricks of poachers.—I have before mentioned, that the killers of rabbits sometimes turn poachers, and are therefore desirous of screening offenders. While I lived with my father, being on my return from our

farm at Skegnest, and passing Driby, where my uncle lived, who had a large warren farm, I had got about a mile and half from the latter place, when I met three men, with a bag or two on their backs, large sticks in their hands, and two dogs following them. This being between six and seven o'clock in the evening, in the month of December, I suspected they were going to rob my uncle's warren: when I reached home I mentioned my suspicion to my father, who was rather disposed to send me that evening to inform my uncle; but it so happened I did not go:—this was on the Wednesday. On the Sunday following, returning from foddering some cattle that were out in the grounds at Aby Grange, about half a mile from the house, I observed the very same three men go out from the house of a labourer who worked for my father, and equipped in the same manner as before. Being several hundred yards from them, their backs towards me, and a high thorn hedge between us, I had not the least apprehension of having been seen. When I got home I told my father, who desired me to go and inform my uncle: I accordingly set off on foot, the distance being about three miles, and when I reached Driby it was about eight o'clock. Having acquainted my uncle with what I had seen, he went into the warrener's room, and sent out four of his assistants, after telling them the story: these men were directed to go two on one side of the warren and two on the other, keeping inside the banks, and to meet at the farther side. About a quarter of a mile from where two of the men had to walk, there was a road-gate. When they had been gone a few minutes, my uncle asked me to walk with him into the warren; we went in the middle, and had not proceeded far, before this road-gate was clapped-to three times successively. My uncle, who was no stranger to the tricks of those men, said immediately,

“That was a signal given by my own men, to let the poachers know to get off.” The men, not suspecting their master was in the warren, when we got near to the place where they were to meet, and they saw us, we could observe them halt, not making up to us as they ought to have done, for they could not suppose us any other but the poachers. This shewed it was their intention to give the poachers an opportunity of getting away. But those poachers had noticed me when I saw them leave the labourer’s house, though I believed they had not, and were so circumspect, as to suppose that I should go and let my uncle know: they therefore went to a place where there were two hay-stacks fenced in with faggots, which they knew I should pass, either on foot or on horseback, and kept watch for me. My reason for walking was, expecting, if they went the same road as they did on the Wednesday, I should overtake them, and they would discover the plot. After waiting there until I had passed by the place, they took a different course, and proceeded to Worleby warren belonging to Mr. Grant, to take rabbits there, where two of them were apprehended that night. It happened that my father hired the man who escaped, and through him I gained a full knowledge of these poachers’ proceedings. The dogs they kept for the purpose of stealing rabbits were nearly as cunning as themselves; by merely laying down a glove, they would go into the warren, and fetch rabbits to the place where the glove lay, and continue so doing, without the poachers’ being on the spot; the men, therefore, secreted themselves at a small distance, so that they could see if the dogs were followed by the warreners. On the Wednesday night I met these poachers, they did go to my uncle’s warren, but only sent in their dogs; though by that proceeding they do not get so many, as the dogs, having a distance to

fetch the rabbits, together with the fatigue of catching them, are apt to tire. These dogs are so well instructed, that if they see or hear the warreners near the part where they are hunting the rabbits, they will not enter the warren again, but go to the place where the poachers are, and lie down; on which the poachers, knowing that danger is to be apprehended, immediately take up the rabbits they have obtained, and decamp. These dogs are run in what the poachers term bridles, viz. a piece of wire put into their mouths, fastened with a string, which prevents them from swallowing; for the warreners have a device to poison dogs, by laying some sort of balls composed in part of food that dogs are fond of, in which the *nux vomica*, or poison nut, is incorporated, but which they readily eat. The night those poachers were taken in the warren at Worleby, the man above mentioned supposed the warreners heard them enter by their making some noise in getting over the bank, for the warreners had secreted themselves; and it so happened that the poachers walked up to the very spot, when all on a sudden two were seized, without having any run: there being only two of the warreners, they only caught his companions; but a gun was fired at him, and he received a few shot corns in his legs. It would seem, from this information, advisable for warreners sometimes to fire a gun in the night, to cause an alarm; for although it would discover where they were, it would at the same time intimidate the poachers' dogs. This man also informed me, that there is generally one man among the poachers who has been a killer, or servant in the house, where they go to rob warrens, and knows the most proper hours in the night;—between eight and nine, when the warreners go to supper, and again at from twelve till one in the night, when one set of watchers goes to bed and the other comes on, are the usual times: as those warrens are large, the poachers know, at all

events, what part of the warren the watch will be in at certain hours. Those poachers disposed of the skins at about half their real value, to men who bought many whole warrens: these men, having a drying-room high up, perhaps some garret, for the convenience of drying, leave the window open in the night, at which time poachers carry the skins, and with a long pole, the skins being tied together, throw them in at the window; the master keeps the key of the room, and enters it first in the morning, when he mixes them among the others: thus the parties never see each other at the time of delivery. The receiver commonly dealt in wares; the poachers, therefore, took part in goods and the rest in money; consequently the receiver gained more by the poaching than the thief.

There is another description of poachers, whose device is very different from that above mentioned.—When I lived in America, I employed a man who had been transported for poaching hares, rabbits, &c.: he informed me, that, in taking hares, their practice was, to set a number of snares in the liberty of a gentleman who preserved his game with great attention, and had much of it, for where game was scarce they could not make it worth their while. Their mode of proceeding was as follows:—The first night they set many snares in some part where they did not expect to obtain much plunder, and watched them during the night, taking all the hares they caught, excepting two or three, which were left as a decoy, the vermin, &c. being sure to find them during the following day; when the game-keeper also was on a certainty led to them by the noise of crows, magpies, &c.: the poachers likewise left many more snares in the hedges, to make the game-keeper believe that they intended returning there on the following night, and thus draw his attention to that part of the manor. After this deception, the poachers proceeded to a con-

siderable distance on the manor to set their snares, having a night or two previously stopped up all the small openings that the hares might by chance go through, and in those where they intended to set the snares they placed a thorn branch of one year's growth: the hare is very fond of the thorn when young, and will be sure to bite it off at a proper height to make a prick for the snare, to keep it upright; though, being very timid, if she find any thing different from what she left the night before in the smuce or opening, she will be shy at venturing through; but finding it the same, she readily passes, and is almost inevitably caught.

In woods and plantations they set their snares in a different manner, placing them in the hare tracts, and binding down a young bough, so that when the hare was caught the branch would spring, and raise the hare to some height from the ground. This practice was much followed, with two views;—the one, to preserve the hares from foxes, fumarts, &c. the other, to decoy the game-keeper, by leaving one or two hanging during the following day; as if they got him to watch in a wood or plantation, they thought him more secure, as he could not there see to any distance. The hares so caught were taken away by the night-coaches; for there is no doing much in that kind of poaching unless there be a speedy conveyance to some city or large town—London is the principal: indeed it is one very material consideration in the appropriating of lands to warrens, that the carcasses can be sent to some populous place at a moderate expense; those warrens in Sussex would scarcely pay expenses if it were not for the London market.

SECTION II.

Tame Rabbits.

TAME rabbits are generally confined in hutches, or boxes, and many are kept in the vicinity of London.

They are fed in the morning at four o'clock with red clover hay, at seven with pollard and brewer's grains; at two o'clock in the afternoon, with cabbage, or other vegetable; at nine o'clock at night with pollard and grains: without this very great attention they do not thrive to pay for their keep. The produce of one doe is from three to nine; but as the doe will permit the young of another to suck her, by using a little device, such as rubbing the young rabbit with the urine of the doe to which it is intended to be put, they generally rear and fatten six, one with another, which is the greatest number that one doe will rear, to fatten them properly, so as to be ready for market at the age of five weeks, when they are sold at 14*d.* each on the average, which is 7*s.* for one litter: the doe will take the buck in a month after kindling; and, as she goes that time with young, she will produce about six litters a year, which is thirty-six rabbits, worth two guineas annually. In the county of Bucks are men who have five hundred doe rabbits, for which they collect many kinds of weeds, sow-thistles, dandelion, &c. serving them as green food: they give them also much red clover hay, with oats and wheat bran. Quantities of dung are collected from those rabbits, which is of the greatest utility to the red clover crops in that county: hence the weeds are turned to a very good account. The neighbouring farmers buy the dung, and sow from twenty to thirty bushels on an acre, generally on the red clover; and the produce is estimated at about one third more than when the crop does not receive such dressing. It is mostly applied on strong clay, being found of the greatest service to such soils.

I am of opinion that tame rabbits would be worth the attention of the lower order of people in country places, as half their food might be collected in hedge-bottoms, with the noxious weeds in corn and other crops; rendering the feeding of them much cheaper than in

London, where persons who keep them have every thing to buy. . Even if farmers were to keep some of this tribe of animals, they would become as useful in the family as pigeons, and the manure be of equal utility. When I lived at Doncaster I kept many tame rabbits; I have had a hundred or more, at one time; and in the summer above half their food was the refuse of the garden, which, had it not been given to them, would have been nearly an entire loss. I kept some also when in America, feeding them in the summer with the sow-thistle and lintseed cake, which made them as fat as bacon hogs: we were not correct enough to keep any account of the quantity of cake they ate; but, if it be not too expensive, it will be found most excellent food.

I never noticed the utility of rabbits' dung until I surveyed the county of Bucks, where it is in so high esteem, that they fetch it from London, and carry it many miles into the county: but manure of all kinds is so plentiful in London, that the dung of rabbits is there sold so cheap as about 6d. a bushel.

CHAPTER X.

P O U L T R Y.

Breeding and Management.

BEFORE I give directions for the management of poultry, I cannot avoid hinting, that it is perhaps impossible to make them, taken generally, pay for what they consume, much more to pay rent, like all other live stock; though they are convenient and pleasant, and therefore a certain proportion ought to be raised: but I should not prove myself a friend to the farmer, if I did not shew both sides of the question, and confess, that, while loss by mismanagement is almost certain, with every care and attention much cannot be gained, unless he select a particular kind or species.

SECTION I.

Turkeys.

THESE are voracious animals, that will devour as much as any quadruped on the farm, not excepting the hog, which can be reared at less expense. The most general method of raising them in England is as follows, viz.—When first hatched, it is usual to give them a pepper-corn or two; they are then fed with new milk and white bread, for at least two or three weeks: the pip then comes on, which is cured by fresh butter and rue: after this, they have grits, or whole oatmeal, and milk or butter-milk, until they are about two months old; then small wheat

until harvest, by which time they will have grown strong, and can help themselves. If the crow of a turkey were taken out in the evening about Candlemas, and the measure of the corn multiplied by the number of days he has visited the corn-stack, his flesh would come to much a pound: but the first expense is to be avoided. I had observed before I left England, there were many fine turkeys raised in some of the Lincolnshire marshes, which seemed to me at that time to live on the seeds of different grasses; but I rather apprehend they were partly supported with insects; for in America they raise great numbers of very fine turkeys, and many are kept by negroes, who have none of those dainties to give them, as they have them not for themselves. I had concluded before I left England that turkeys could not be raised to pay for what they ate; and that if a farmer chose to eat turkey at Christmas, he had better buy it than rear it. Finding in America they raised great numbers, and with seeming little trouble, I thought the facility arose from the dryness of the sandy soil and hot sun producing myriads of reptiles and insects; and I still suppose that to be one material advantage, though America I believe to be their natural country. But the breeders there have one method in the raising all kinds of poultry which seems to me worth observation:—it is an established custom to set all fowls on new-layed eggs, as they find the birds much stronger from such eggs than from those that have been kept; therefore, when the turkey has layed six or eight eggs, they put them under a hen with some hen eggs, so that they may be all fresh; and when the turkey is ready to sit, they put with her own some fresh hen eggs under her, in which there is great use, as the chickens learn the turkeys to peck. I saw nothing further relative to turkeys deserving notice in that country; but when I returned, and went to Ire-

land, I found the Irish method of raising turkeys much worth observation.

The mode of raising turkeys in Ireland is as follows, viz.—They first give every turkey two corns of all-spice; and for three days after the birds are hatched they feed them with boiled milk, having a hen's egg in it, which makes it like curd (four hen's eggs and a pint of milk will serve twenty-five young turkeys for one day); they then add a little oatmeal, and two more eggs, for about fourteen days, during which time a small quantity of sharp nettles, shred very fine, are given; after that time they give them milk, or butter-milk, and a small quantity of oatmeal, with many nettles added, but at all times shred very fine:—much depends on the first ten or fourteen days' care; turkeys, like all other young animals, if good nursing be given them at first, will afterwards take care of themselves:—then, when they are about three weeks old, they give them milk, or butter-milk, with many shred nettles in it, and a little oatmeal, mixed to a kind of paste; this is found to be much better food, as the nettles are hot, which is the kind of food they require. By this simple and cheap method the lower order of people in Ireland raise an amazing number of very fine turkeys; and when I lived in that country a full-feathered turkey was sold at 18*d*.—a much lower price than it could be sold for when raised in the expensive manner adopted in England. Now, nettles would have been one of the very last things I should have thought of for feeding the young tender turkey with, as I have known them kill a gosling, when first hatched, by external stinging; and when I first saw the poor people in Ireland collecting them in a morning, and every morning, I thought they were to eat by, or make tea for, themselves: curiosity induced me to ask them what use they put them to, when they told me, to feed

young turkeys. I was very much surprised, as the sting of nettles is so sharp, that if put into the mouth of a sheep, apparently dead (in a swoon, a state of suffocation, &c.) they will readily bring it to life. At that instant, therefore, I went to see the process; and I attended to their turkeys daily, to see how they throve, and what loss the broods sustained; when I found, to my utter astonishment, that they prospered infinitely better than any I had ever before seen, and without much loss. In England, I thought the turkey a mere luxury, as the raising of it was attended with much expense, and the loss generally great, so that, if ten or twelve were hatched, many would die, one after another, during the first month, with the pip, &c. thus, I used to calculate they cost 14s. or 15s. each. Seeing those people have such success, the second year I was in Ireland, notwithstanding I could buy turkeys so cheap, I saved two hens and a cock out of some I had bought for eating, and of my favourite colour—copper; though hens in their first year are not so good nurses as when older: an Irish labourer's wife, near to my house, undertook the care of them. These two hens hatched twenty-four turkeys and three chickens, and brought them all up, without the loss of a single bird, or the appearance of pip or any other disorder to which the turkeys I had raised in England were subject: I have, therefore, every reason to believe the method here prescribed both the best and the cheapest. My turkeys were reared as before described, and afterwards regularly fed once a day, with many nettles, a little oatmeal, and butter-milk, until the stubbles were ready to receive them, when they were both fine and large.

The kind of turkey which I selected I think worth the notice of the breeder. They were copper-coloured; the hens from one breeder, and the cock from another. I have observed, in breeding all animals, that crosses have

been most successful, producing more healthy offspring than by what is termed breeding in-and-in, viz. brother with sister, or mother with son. I am fully convinced there is an advantage in crossing blood in all quadrupeds, and no doubt there is the same in fowls. The copper-coloured turkey, which is like the wild turkey in America, appears to me to be much hardier, and a better nurse. When living in America, and seeing those copper-coloured turkeys—so like the wild turkey that if I had met with them in the woods I should have supposed they were wild, and might with much innocence have shot them—I supposed that sort of weather-beaten colour arose from their being continually exposed to the weather; but it proves to be natural, as those in Ireland retain the same colour, even in that humid country. I believe these latter to have been more truly bred from the real wild turkey, as they seem to carry with them the instinct of nature, of which they shewed many symptoms; I particularly remarked their care and sagacity.—There is a blue crow in Ireland, that much resembles what, in some parts of England, is called the Royston, and in others the sea-crow, though seeming to vary greatly in its nature; it is so audacious as scarcely to be prevented seizing young fowls, ducks, turkeys, &c. even when they are grown large in the feather: but the two old turkeys continually remained near a hedge with their young, seeming to keep a good look-out; and when these crows were on the wing, apparently with an intention to strike down at the young brood, one of the hens, with the young turkeys immediately ran to the hedge, while the other stopped to encounter the enemy: so if they saw a dog, or any animal that would be likely to harm them: and, what was very remarkable, the young birds of themselves, made to the hedge more quickly than the hen, and not a single one remained with the hen that

waited to fight if necessary: the same hen always stood sentry, and the other took the care of the young; nor did they ever range, as turkeys in general do, until their young were able to defend themselves. I therefore infer, that the copper-coloured turkeys retain much of the disposition of the real wild turkey, as the latter must have both greater hardship and more dangers to encounter, by living in the woods, exposed to all kinds of wild carnivorous animals.

The reason why the English turkeys are so tender to raise, may be in part from their being intermixed or crossed with the white, which has been productive of so great a variety of colours—red, brown, black, and many intermixed with white, more or less. I cannot positively ascertain whether the success in Ireland, in raising turkeys, be owing to system or to breed; probably to both: Lady Conyngham had the white turkey, and employed an Irish woman to look after the breed, who had the same kind of success as is pretty general in England—I think she raised two from thirteen eggs set. But there is one thing very much in favour of the lower order of people raising turkeys, as they very generally keep them in the room where they live: the woman who took care of mine set the hens in the house where she resided, and after the young were hatched they were fed in the house, and taken in every night: for although the poor people seldom have fire but when they boil their potatoes, that must make the place warmer. Lady Conyngham's woman had what was thought a proper house for the turkeys, but no fire; though I believe no place is so proper as the room where people live, as I have every reason to conclude that poultry of all kinds, except geese, require much nourishment. In America it is not at all uncommon to see from fifty to a hundred turkeys in the possession of one farmer, or planter; and great numbers

seemingly raise themselves, the heat and dry sandy soil being suited to them; though the tame turkeys in America have very nearly the same appearance as the greater part of the English breed. For this there may be a sufficient reason, as probably it would have been impossible to domesticate the wild turkey in that country; for, from the gobbling noise they make, they would be very likely to stray into the woods, in pursuit of those they came from. In Ireland there are no woods for them to stray into; but that country is by nature wet, though I do not think the air very sharp or cold: however, wet does not suit young turkeys.

It seems to be very well authenticated, that all the turkeys in England have been imported;—the black from America, which originally must have been copper-coloured, as I never saw any wild turkeys in America of any other colour; and the white from Turkey: it is very evident, from the present colour of the English turkeys, that they have been mixed. I think the white turkey never was so good a kind, either in regard to profit, to number, or to success in breeding; nor are they nearly so good eating, as they are not so juicy. It further appears that the white turkey is of a smaller sort, as those bred tame in America are less than the wild; though, from the nature of things, the contrary might be expected: the tame turkey is continually fed, and generally with the Indian corn; and if the turkey when in a wild state get any corn, it must be chiefly that: as to the different fruits that the woods produce, there are very few instances in which the turkeys in a tame state have not an opportunity to receive the benefit of them.

I have heard it said in America, that the wild turkey will, when full grown, and properly fat (and in some years, when acorns are plentiful, they will be remarkably

so), sometimes weigh from 35 to 45lb; but those I saw weighed only from 15 to 20lb each. The poulterers in the London markets say, that it is very rare in England for a turkey, full grown and well fed, to weigh 35lb: I have, this season, seen one in Leadenhall market weighing 30lb, for which two guineas were demanded.

To cure the pip in young turkeys.—The symptoms of this disease are, the eyes of the turkey look dull, its wings hang down, and it does not keep in company with the rest of the brood. When this is observed, it must be taken and examined; and if, on opening the beak, a small bit of substance appear on the tongue end, which is called the pip, it must be clipped off with a pair of scissars, or it will inevitably kill the bird. Small balls of rue, or herb-grass, worked up with butter, must be given, about half a dozen for one or two days, after the operation.

The best and cheapest method of fattening turkeys is, by what is called cramming them with barley-meal, made into paste with milk, butter-milk, or pot-liquor: the paste should be formed into small balls, the size of a walnut; open the beak, put a ball into the throat, and stroak it down; repeat this until the maw be full: by so doing they will quickly fatten.

To kill turkeys, open the beak, and with a knife cut all the barbs which lie at the roof of the mouth (some persons cut under the tongue; if both be cut no worse); then hang it up by the feet.

Note.—There is something singular in the nature of the turkey. It is very common in Ireland for the poor to keep one, two, or three hens, and no cock: at the proper season they carry their hens to the cock, get them trod, and bring them immediately back; they will thus prove equally prolific with those that have the

cock constantly with them, as those poor people have very great success in raising large clutches of very fine strong birds. There is another remark I made with respect to those copper-coloured turkeys :—the cock turkey I kept in England was in most cases very audacious in killing the young clutch ; but he never kept company with the hens after they came off with their young, until the birds were strong, constantly wandering by himself, although all in the same field.

It may appear extraordinary to some persons that the influence of the cock turkey should continue for so long time ; but since I wrote the above, I find the effect is the same in fowls. I killed the cock from my hens in May, to try if they would lay as many eggs without a cock, and I find no difference ; consequently, to those who keep hens merely for their eggs, with no intention to raise chickens, the expense of keeping the cock is unnecessary : and the eggs that were layed by the hens in November had equally as strong a tread as those they layed when the cock was with them ; from which I conclude, that the cock propagates his seed when, or before, the hens begin to lay, for the whole season.

I have before stated that the turkey is a most voracious animal : to substantiate the fact, I met with a poulterer, in Clare-market, who has kept four turkey-cocks all the last summer, and he says they regularly ate a bushel of barley every week, at the same time having the run of the market : he thinks they would have eaten double the quantity had it been given to them, and they had not had the market to run in : thus a turkey, to have its fill, would cost 6s. a week keeping.

SECTION II.

Geese.

THESE are the most profitable of all kinds of poultry, as their food is simply grass and water: but, what is singular, though they will not only live and thrive on grass, nay even get very fat, they are not eatable until fed with corn. For raising geese, I prefer females of the dark grey colour, and the male, or gander, of the large white kind: which breed is mostly found in the county of Durham: they are also met with in many parts of Yorkshire, and in other counties, but not so generally as in Durham. I have found that geese of the dark grey sort are not so large as the other; they will weigh, when moderately fat, about 7 or 8lb, a gander from 9 to 11lb; but the Durham geese will, with the same fatness, weigh, the geese from 11 to 13lb, and the Ganders from 15 to 18lb, when drawn ready for the spit. The dark grey goose is of a much hardier nature than the white, and the skin is sometimes black and unsightly when brought to the table; but the skin of the offspring from the cross, notwithstanding they have a mixture of dark feathers in them, will be white, and they will be much larger than their mothers, though not quite so large as the whole Durham breed. By this cross I have raised from one of the grey geese eighteen; and for years together, from the produce of two of these geese and one gander, twenty-eight. I have kept three and four geese to one gander; but I found that a bad plan, as there were many eggs without the treadle, being what are termed by the shepherds or managers of geese *shiner eggs*; by these experiments, I have learned that two geese are the proper number for one gander. Since settling this point, I have had very great success in breeding geese; and have

further found this large sort of gander a kind father, very watchful over the young brood, courageous, and ready to resist all enemies likely to injure the flock: in this the gander varies much from the turkey-cock, a good gander being as fond of the young goslings as the geese. In the fens in Lincolnshire, where, I have been told, there were men who set one thousand geese, every goose had her gander; probably for two reasons—the one I have noticed, to have the geese properly trod; and, secondly, to have a gander ready to go off with the young brood. Those men would not have made a practice of keeping as many ganders as geese, if they had not found their account in it; for some years, when severe winters happened, the geese were very expensive: during heavy snows and hard frost, the flocks of brood geese belonging to some of those men consumed four quarters a day, sometimes barley, at other times oats, whichever proved the cheapest. A goose, to be good and properly made, should be short in the leg, with a smart head, good quick eye, the neck rather short, and fine near the head, but gradually increasing towards the body, which ought to be large: the gander should be of the same form, but much larger in every part.

At the time the geese lay their eggs, it is proper to take them away as soon as they are laid, and give each goose's eggs a mark with a piece of lead on one side, so that when she sits she may have her own. I have two reasons for advising this proceeding;—first, to be able to determine which goose proves the most productive; and secondly, I am of opinion, that, by instinct, the goose has a knowledge of her own eggs, hence she will sit more kindly, and be a tenderer mother at the time of hatching. Nests where geese are intended to sit are best formed of wheat straw: the aw of barley is better than oat straw, as the latter, from its quality, makes a bad

bed for any thing, being unhealthy (if rearing calves be bedded with oat straw, it is sure to make them lousy). The nest should be made sufficiently large to hold the eggs, and should be formed a few days before the goose has done laying, or when she is inclined to feather her nest, which is easily known, that she may put the straw all to rights, and make every part firm, for the eggs to lie in a regular manner, not crowding one on another, but all receive warmth alike. The eggs, during the time of gathering, should be kept in some proper vessel, in a dry place, and surrounded with dry, sweet, wheat bran, to keep the air as much from them as possible. The house where they sit should be dry and warm, fronting the morning sun, and near to a pond of water, with grass growing near, so that the goose may readily get back to her nest again, as it may be seen she is impatient to do. Some people give the goose corn in a dish by the side of the nest, which is very wrong, as the corn causes her to possess more heat than nature requires; she may then be seen, with her nib, to turn the eggs, which is occasioned by the side upward becoming hotter than is comfortable to her. When the eggs burst, the nib of the bird first appears, and at times some assistance is necessary, by breaking a portion of the shell off, that the bird may with more ease release itself; and if some spittle from the mouth, or a small drop of water, be put to the nib, it will give life and strength to the bird. It is generally requisite to take the goslings, as they come out of the shell, from the goose, or she would become restless, and not hatch the whole, put them into a basket containing some warm and dry wool, and set it in the fire-corner, covered with a woollen cloth: every three or four hours take them out, and give them some water and grass;—the best method of giving them grass is, to cut up a square sod, and let them pluck the grass from it.

Every time you go to look at the eggs while hatching, take the goose off from her nest, and throw her into a pond of water, which is of essential service. When they are all hatched, and are given to the goose—the morning being the most proper time; for when put to her at night, if there be a weak bird, the stronger goslings will before morning tread it to death—it is advisable, for the first two or three days, to let some boy, woman, or girl, watch them, keeping at a small distance, to be ready, if one get into a hole, to release it, and to prevent crows, &c. from picking them up; for if a crow seize one, it will endeavour to obtain more, and probably haunt about the place, not only to destroy the goslings, but to watch for ducklings and other young poultry. A goose, in a general way, lays about thirteen eggs, which is the number they are mostly set on.—It is usual to set fowls, geese, &c. on an odd egg, but that is an absurd notion.

I have observed, I once raised eighteen from one goose, but she did not sit all the eggs; she set fourteen, and a hen five: the goose brought off the whole fourteen, and the hen four. The next year I set the two geese on fourteen eggs each, and they hatched twenty-eight birds: this was while I resided at Doncaster. When I lived in America I kept two geese and a gander to breed from, chosen in the same manner as before—two grey geese and a white gander; but the weather being very severe in the spring, I had no expectations of the geese laying their eggs: nevertheless, they had formed themselves two nests in a bramble-bush, near together; when we found them, after the lapse of some time, there were seven or eight eggs in each nest; they had gathered leaves and refuse stuff, and made very comfortable nests, so that they could carefully cover up their eggs. It being my general rule, to let nature have its course, although it appeared that

the severity of the weather would spoil the eggs, there being much snow, &c. they were not molested: thus they laid twelve eggs each, and brought off twenty-four birds. I am, therefore, doubtful whether, if it were not for the danger of the eggs being destroyed, geese would not prosper in that way as well as in any other: but the former mode seems the safer. Nests formed for geese to sit in are usually raised about twelve inches, when settled and firm, from the ground; and before the fresh straw is put into the nest, that the goose has had during the time she layed her eggs, which has been made short and soft, with the feathers, is carefully taken out, and after the fresh straw is well worked together, that old part is laid at the top. As the nest is so high, it will be necessary to form a kind of step, to assist the goose in getting on when she returns from water: and after she has hatched the goslings, the nest must be lowered again, so as to be near the ground, that the goose and goslings may with ease to themselves get off and on, the straw put in to raise the nest being taken out, carefully replacing the feathers, to be soft and warm to the young brood. The goslings want no other food than a grass field and a water pond, to which the access is easy, that they may get in and out without difficulty.

I have described the foregoing mode of managing the nest in compliance with the prevalent custom; but I am not aware of any particular advantage that is derived from raising it: my two geese in America, before mentioned, did equally as well, if not better, without that precaution; they hatched their eggs entirely of themselves, and all came off together. It would seem that nature requires the nest to be nearer the ground, as the eggs at times appear too dry, and the geese parched: when hatching, too, a bird is sometimes killed in getting from

the shell, and it is necessary to moisten the eggs, by throwing the goose into water to wet her feathers: the young bird also wants water, even in the shell. Thus it is probable, if geese were left to nature, the young goslings would all come off together; which is not the case in the way they are usually treated, as they are sometimes two or three days in hatching: whether that arises from the eggs being left under the goose during the time she is laying, and thereby forwarding them towards the hatching by the warmth they receive, or the being nearer to the ground, I cannot tell. As to the number of eggs they are set upon, I am of opinion that a goose would seldom lay more eggs than she could conveniently cover, if it were safe to leave them in the nest during the time she is laying, as wild fowl generally hatch all the eggs they lay—the wild goose, &c.

Plucking geese, &c.—In the fens in Lincolnshire, it was the custom to pluck geese every six weeks, beginning at Lady-day, then at May-day, Midsummer, Lammas, and Michaelmas; and I have known some plucked as late as Martinmas, but this was not common. Some persons wing them every quarter, taking ten feathers from each wing, which sell at about 5s. a thousand. The value of the feathers is estimated at about 3d. a head each time, or 1s. a head per annum; and about 3d. quills: this calculation is taken from the fen or common geese, which are small. A goose of this sort, when pulled dead, is reckoned to produce about 6d. in feathers: but I have bought large fat geese in Newgate market, and, with clipping the feathers from the strong part of the quills (not meaning the wings), they pulled one pound, worth at this time from 2s. 6d. to 3s. It has been thought that plucking geese makes the flesh hard and tough, which is erroneous; as I have completely proved, by buying a

number of those fen geese that had been plucked five times, and then pulling one part of my own brood twice in the summer, leaving the other portion to shed their feathers, when there was no perceptible difference. Others say it is cruel; but that is a mistake, for want of attention; for geese naturally shed their feathers about three times a year, and the quills twice: therefore, if not plucked, they drop them, which is an entire waste. The time for plucking may be known by pulling a feather; if it be perfect at the extremity it is ripe, and ready to pluck: but, on the contrary, if not ripe, it will be bloody at the end, and ought not to be plucked until it be perfect. There is both a time and manner of doing this, which, when properly observed, will rather add to the comfort of the geese than otherwise: if the feathers are plucked when ripe, the operation gives them no pain: and when the weather is hot, it is comfortable to them: but those who are not used to plucking, are apt to pull some feathers which ought to be left on, namely, under the wing, and some on the breast, that hold the wing up; if these latter be plucked, the wing drops, so as nearly to touch the ground, which must be painful to them; and not only that, but there is a tender part under the wing which wants protection. In the Lincolnshire fens the geese cut a most miserable figure, from being so continually plucked, and I should imagine they could not be so strong, or so productive: but the feathers were the principal object, as the common price was only one guinea a score for the carcasses alive: and the breeders sustained great losses from a disease called the gout, which was a swelling in the feet and legs, probably from want of water or food, as the water some summers was very scarce, with little grass, and pasture geese are not so subject to that disease. The feathers plucked off the live geese sell at a much higher price than those

pulled from the dead geese; therefore those who do not pluck the living geese, lose the advantage of the best feathers—an emolument worth looking after. I have the more fully explained the process of plucking geese, to shew that there is profit attached to it, and that it cannot occasion injury.

Some men are adverse to the keeping of geese on pasture land, where other stock is pastured, supposing it makes the land unhealthy, which is an erroneous idea; for I have been in the habit of raising geese, and pasturing them among other stock, but never experienced the least loss from so doing: and my father, for a great number of years, kept a flock of geese on a piece of land in which the house stood, not more than two acres, with seldom less than from four to six sheep in the winter on it, and more in summer; they were breeding ewes, and we had better luck there than in any other part of the farm, for I do not remember losing a single sheep on that land, I therefore think the geese might be a means of rendering it healthy. But I am a great friend to mixing stock on all grazing land, as each kind has its favourite grass; thus they clear the pasture one for another: while, also, it keeps more stock, they thrive better; and that which causes them to thrive in a regular way, must be conducive to their health. Again, others object to the dung: but if we take common reason for our guide, and consider what it is composed of, chiefly grass and some gravel, that the gravel goes through the same process in the gizzard as in other fowls, and that the ordure of pigeons, hens, &c. exceed all others, it appears clear to me it is as good as, if not better than, the dung of many other animals. I would therefore recommend the farmer who keeps geese, to have a house to put them in at night, if only to collect their dung; for when mixed with the dung of the fold-yard, and put

into the compost-hill, it probably might prove of greater value than has heretofore been thought, as a mixture of different manures has already been proved superior to any one alone. When left out in the fields or pastures, geese generally deposit their dung at the mouth of a pond, or in some place where it is of little or no use: however, at all events, if kept in a house at night, they would be secure from the fox and all other depredators.

Feeding geese.—It may be necessary previously to observe, that the flavour of the goose depends on the kind of food she receives, more particularly than some other animals. My first experiment was made when I lived at Claythorpe.—One market day at Alford, I saw a man sell two of the most extraordinarily fat geese I had ever before seen, or than probably I have since: I had the curiosity to ask him how they were fattened, when he told me they had had nothing but grass and water. This man lived in the marshes, which are very rich land; and the geese were remarkably large, as well as fat. Having at that time some geese pasturing on a piece of rich land, sandy soil, with a most beautiful stream of water, only about half a mile from the head of the spring, and thinking that the fattening of geese by putting them up to feed with oats, &c. proceeded from some old custom, I had one of those geese killed to roast; she was very fat, but when she began to warm by the fire, the smell was almost insupportable: the flesh was not eatable. This to me still seems strange, that grass, which is the natural food of geese, I believe as much so as of any animal, should have so unpleasant an effect on *their* flesh only.

As a reverse to the above.—When I lived at Asgarby, on the edge of the fens, it was a common saying, if any thing had an unpleasant smell, it stunk like a fen goose. Having formed an idea, that the flesh of any animal, if ever so poor, put to fatten on sweet food, would be

sweet also, I was one day riding in the fen, some time about Martinmas, when I met with a man driving some of the poorest geese I almost ever saw. I asked him to sell them, thirty in number, and he took 25s. for the whole: these geese were destitute of every thing but skin and bone, for he had just plucked off all the feathers. I had at that time just taken the cattle into the fold-yard, and was thrashing barley: these geese were also put into the fold-yard among forty or fifty pigs, and thirty head of cattle, all watered in troughs; the geese were not fed, but had the picking of the place, and I suppose as much water as they could drink, but none to wash or dabble in: when they had remained there about a month, I had one killed, and a better perhaps never was eaten: they were all the same—tender, juicy, and fine flavoured, though they had been plucked six times. I had other geese of my own breed, raised on the farm, in the same fold, which were not so fine flavoured: but it seems reasonable that the flesh of the former, after being fed with barley and spring water for that short time, should be good.—This may serve to shew that geese, in particular, require sweet food.

Geese are best fattened on oats and water; they eat, on the average, two quarts a day. The experiment was tried on three: one, a gander, weighed 11 lb when put up: weight on the eighth day following 13 lb 2 oz.; after the lapse of seven days weighed again, weight 14 lb 2 oz.; the next seventh day 14 lb 11 oz.; the seventh day following 14 lb 12 oz.: then killed, the weight divided being as under:—

	lb.	oz.
Blood	0	9
Feathers and wings	1	0
Carcase	8	12

	<i>lb.</i>	<i>oz.</i>
Brought forward	10	5
Giblets	3	9
Waste	0	14
Total	14	12

Bone in the carcase, 15 ounces; in the giblets, 5 ounces. Food, one quart of oats daily, weighing 1 lb 5 oz. The cost, 2½*d.* a day, for sixteen days, was 15¾*d.* a week; the next two weeks rather declined in quantity of oats, to about 23½*d.*: the average 14*d.* a week. The expense and produce being as follow:—

<i>Expense.</i>	<i>s.</i>	<i>d.</i>
Price bought at	6	0
Feeding, four weeks, at 14 <i>d.</i> a week	4	8
Profit	2	3
Total	S. 12	11

<i>Produce.</i>	<i>s.</i>	<i>d.</i>
Carcase 13 lb 3 oz. at 9 <i>d.</i> per pound	9	11
Feathers and wings	3	0
Total	S. 12	11

Another gander, bought at the same time, weighed 8 lb 10 oz.; weight the seventh day after, 11 lb; the succeeding seventh day, 11 lb 12½ oz.: food the same as before. The expense and produce being as follow:—

<i>Expense.</i>	<i>s.</i>	<i>d.</i>
Price bought at	6	0
Feeding, two weeks, at 15¾ <i>d.</i> a week	2	7½
Profit	1	10½
Total	S. 10	6

	<i>Produce.</i>	<i>s. d.</i>
Carcase 10lb, at 9d. per pound		7 6
Feathers and wings		3 0
Total		<u>S. 10 6</u>

The carcase weighed 7lb; the giblets 3lb: the bone in the carcase 12 ounces; bone in the giblets 5½ ounces.

The third, a goose, also weighed 8 lb 10 oz.; the seventh day following 11 lb 2 oz; the seventh day after, 11 lb 12 oz.; the next seventh day 11 lb 14 oz.: then killed, the separate weight being as below:—

	<i>lb. oz.</i>
Blood	0 8
Feathers and wings	0 12
Carcase	6 10
Giblets	2 11
Waste	0 5
Total	<u>11 14</u>

Bone in the carcase 8½ oz.; in the giblets 5½ oz.: food as before. The expense and produce were as follow:—

	<i>Expense.</i>	<i>s. d.</i>
Price bought at		5 0
Feeding, four weeks, at 14d. a week		4 8
Profit		0 4
Total		<u>S. 10 0</u>

	<i>Produce.</i>	<i>s. d.</i>
Carcase 10lb, at 9d. per pound		7 6
Feathers and wings		2 6
Total		<u>S. 10 0</u>

It will be observed, there is no considerable loss in the foregoing experiment, which was not tried with a view to profit, but to be correct in the information, and likewise to ascertain for how long a time a goose pays the most for keeping, which appears to be about fourteen days: the one fed fourteen days gained but 1s. 10½*d.*; the others were fed two weeks longer, and the large one gained 2s. 3*d.*, the small one 4*d.* Thus it shews, that, like all other animals, the largest geese will pay for more keep better than those of a small size.—Some experiments have been tried by a poulterer in Clare-market, by feeding geese six months on oats: and the result was, they had lost their flesh, being nearly all fat, which, when they were roasted, dripped away, and they were reduced to little but bones.

I knew another experiment tried, by feeding geese one month, when some were killed, which proved fat and fleshy; but two out of the number being fed on oats, in the same manner as before, for one month longer, became very poor: from this and my experiment, it seems that geese will not stand feeding, in a confined state, more than three weeks, to keep increasing.

Geese are not usually sold in London by weight; but when I buy geese, or any other kind of poultry, &c. I mostly weigh them. I have purchased a goose for 4*s.* that weighed 7*lb.*, and when drawn 5*lb.* 10*oz.*; though the same goose at another time might have cost from 5*s.* to 6*s.*, as the price of poultry varies much, according to the season of the year, and the supply: when cheapest, they are generally 9*d.* a pound; but fine large geese, such as those of mine, sometimes sell at the high price of 1*s.* a pound; thus, at that price, the large gander would have fetched 13*s.* for the carcase, and the feathers selling for 3*s.* the produce would have been 16*s.*, which would have paid for the oats even bought at the high

rate of the corn-chandler. There are geese brought into London, called stubble geese, which are sold in the streets by country people at 8*d.* a pound; but they are rather ordinary.

Those small geese, of 7 lb weight, when made ready for the spit, weigh about 5½ lb, which, at 5*s.*, is nearly 1*s.* a pound; the giblets are worth about 10*d.* or 1*s.*: the bone in the carcases averages about 7 oz.: the giblets weigh, on the average, from 1 lb 14 oz. to 2 lb; the bone in them about 4 oz. I have had other geese, larger than those, sent out of the country:—one weighing 6 lb 10 oz. when drawn, and without the giblets: the bone of this goose's carcase weighed 10 oz.:—another, weighing 10 lb 7 oz. before drawn: the carcase weighed 7 lb 1 oz; the giblets 3 lb 6 oz.: the bone in the carcase 12½ oz.; and in the giblets 5 oz.

I have observed the poultry sold in London not to be so fine flavoured as the country poultry: and, as great part of it is fed in the country, I have been at a loss to conceive the cause. But, from some attention I have paid in the poulterers' shops, I find it arises from the birds being packed up in large quantities, with their entrails in them, whereby they heat, many of them being brought from a great distance, and the flesh hence acquires a somewhat disagreeable taste.

SECTION III.

Fowls.

THESE, although very useful, can scarcely ever be rendered profitable. The kinds are various. The shape, &c. of the hen, let the sort be what it may, should be as follow:—Beginning at the head, it ought to be small, with a quick, sharp eye; the breast full; legs short, and moderately small in the bone; the body long and

broad; in colour rather dark, as brown and white, or what is 'called speckled, all dark colours being the hardiest and most easy to raise: what are termed the game breed are, in general, as good layers as any, and few or no others afford so fine flesh. To preserve a stock of hens to lay eggs throughout the year, it is proper to have them from different broods of all ages, some of every month; when, as they attain maturity or reach the usual age for hens to produce eggs, they will naturally begin to lay, and continue one after another. Those persons who wish to improve the breed for the production of eggs, which is one great use in hens, ought to be very circumspect in selecting the eggs to breed chickens from for store fowls; viz. both hens and cocks should be preferred from hens that are good layers, especially such as lay eggs early, and that readily begin to lay after hatching and bringing-up a brood of chickens; not to breed from hens that go loitering about with the chickens for a long time. I have been successful even in this by a cross, of the Bantam hen with the game cock; but the eggs are smaller, and will not sell for so much as the whole breed, therefore the latter are to be preferred. I have tried many kinds of hens in England, and also in America, where my hens layed many more eggs than any I ever had in England: the game hen was preferable in that country. I had an instance of a hen laying two eggs in one day: this was known by my having but two hens and a cock, the place where they were kept being distant from any other house; we got regularly two eggs a day, and one day there were three: this might happen oftener, though not known, as it was but for a short space of time that I had only two hens. In America they have hens from all parts: from Holland they have those of the cuckow or speckled colour, called by them duck-legged hens, which are exactly of the form I have described as being the best: of the large kinds,

they have the white Poland and the East-Indian breed, both which do very ill in that country, especially the latter; the winter's frost affects their feet and legs in such a manner as to cause them to swell much, and become lame. These last two sorts lay very large eggs, but are bad nurses, and the chickens very tender to raise: those from Holland are good layers, and raise large broods of chickens; but America is extremely favourable both to the laying of eggs and rearing of young. My hens produced eggs all the winter, during the most severe weather, when the frost would have frozen the egg in a few minutes so as to make it crack, if not removed. When I returned from that country, I brought with me a thirty-six-gallon barrel filled with eggs, packed in salt; which is the method adopted by the Americans to preserve their store eggs from the frost in winter and the extreme of heat in summer, and to carry them to sea: by this means, I am convinced, from my own experience, eggs may be kept for any length of time, as I never knew an instance of eggs thus preserved being in the least changed. The method is, to put salt at the bottom, then place the eggs, the small end downward, side by side, and cover them with salt; then arrange another layer of eggs, and put salt over them; proceed in this manner until the barrel, &c. is full, or all the eggs to be preserved are completely buried in the salt. The eggs I had so packed, and brought over to England, were equally as good for eating, or in puddings, as when put into the barrel; and the hens being so excellent layers, I tried to raise chickens from the eggs: some were hatched, but the birds were so weak that they all died;—which corroborates the opinion entertained by the Americans that new-layed eggs produce the strongest birds. Chickens are so easily raised in America, that I have had many instances of hens bringing off large broods; and, although regularly

fed every morning, while sitting they would leave their nest to feed among the others; but when they had hatched, have gone into a timothy meadow, and never come to feed again, bringing up the whole of the brood without the loss of a bird. From the warmth and dryness of the soil, the numbers of flies and reptiles, and the seeds of weeds, chickens grow there more in one week than they do in England in double the time. Perhaps the Indian corn may occasion their laying so well in winter: my hens nearly supported themselves by picking the dung of cows, fed on lintseed cake; this would probably be good food for hens, as my pigs lived entirely upon it, and the fall breed were as fat as they could walk.

The Bantam fowls are extremely prolific; one hen, belonging to a lady who is very curious in this breed, layed a hundred and thirteen eggs, and brought up three broods of chickens, in twelve months: it is said the flesh of this kind is equal to that of the pheasant, when dressed and served up in the same manner. I have tried this, and found the assertion just: but I have also tried a game fowl dressed in a similar way, and I think it preferable—it is of as fine a flavour, and more juicy, as most large animals are, there not being so much outside.

An experiment was made with six hens and a cock, by keeping them on barley one whole year.—They consumed half a peck every week, which was put into a vessel, and they were suffered to eat it at pleasure: the same number kept before, and fed twice a day, ate one quartern a week more: the hens laid about the same number of eggs with each mode of feeding, or rather more when left at liberty to help themselves. This may appear strange, but it is a well-known fact; and the reason assigned is, that when permitted to go to their food at pleasure, they do not gorge themselves, the hens being found to have much less in the maw at any one

time. The result of this experiment is, in a great measure, contradictory to the fattening of other animals; and whether such treatment would bring them into so fat a state is doubtful: but I have known fat hens lay very few eggs.—This experiment was tried in the year 1806.

Another experiment was made the year following, beginning at the 14th of June;—an accurate account being kept of the quantity of food the same number of hens and cocks consumed; the number of eggs they layed every week during the whole year, and what they were sold for; with the number of chickens hatched: as follows:—

*Eggs layed from June 14th, 1807, till June 12th, 1808,
by six hens.*

Date. 1807.	No. of eggs a week.	No. of eggs each month.	Date. 1807.	No. of eggs a week.	No. of eggs each month.
June 14					313
21	31		October 4	9	
28	20	51	11	14	
July 5	24		18	7	
12	22		25	5	33
19	22		November 1	2	
26	20	77	8	7	
August 2	24		15	6	
9	18		22	4	
16	19		29	5	24
23	29		December 6	6	
30	21	111	13	4	
September 6	24		20	6	
13	18		27	6	22
20	14		Carried up		394
27	18	74			
Carried up		313			

Date.	No. of eggs a week.	No of eggs each month.	Date. 1808.	No. of eggs a week.	No. of eggs each month.
1808.		394			519
January 3	8		April 3	18	
10	7		10	16	
17	10		17	19	
24	9		24	24	77
31	10	44	May 1	23	
February 7	10		8	22	
14	8		15	25	
21	10		22	30	
28	9	37	29	19	119
March 7	8		June 5	21	
13	10		12	28	49
20	14		Total		764
27	12	44			
Carried up		519			

Expense.

L. s. d.

Fifty-two weeks, half a peck of barley per			
week, at 10d.	2	3	4
Profit	2	12	2
Total	L. 4	15	6

Produce.

L. s. d.

764 eggs, at 1½d. per egg	4	15	6
-------------------------------------	---	----	---

N.B. During the time, one of the hens hatched eleven chickens from thirteen eggs.

This experiment was tried in London, where the eggs were retailed at 1½d. each: but the wholesale market prices, by the long hundred, which is one hundred and twenty, are, in a general way, from January till Mid-

summer, from 7s. to 12s.; and from Midsummer till January, from 12s. to 25s.: eggs have been known, when scarce, for a short time, to sell for 40s. a hundred. The average price of eggs throughout the year is 14s. and the price those eggs were sold at 15s. therefore the produce is not over-rated. Thus the retailer gains 1s. a hundred by the sale.

The foregoing information shews the season of the year when eggs are the scarcest, the produce of hens with proper care, the current and average price in London, and what profit may be expected. Those fowls cost something under 1½d. a week each keeping, and the difference between letting them help themselves and serving them was about ½d. a week; therefore the saving by this improved method of feeding, in the whole year, was about 14s. 3d. The hens were confined in a small yard at the back of the house, and could obtain no food besides the barley allowed them, except the sweeping of the rooms, a few crumbs of bread, &c. When they were inclined to sit, the means used to prevent them, and to cause them to lay again, was by plucking a feather out of the wing, and pushing it through the nostrils, where it was suffered to remain a few days: this feather was supposed to occasion pain, and thereby engage the hen's attention, causing her to move about, and not leaving her at ease to sit. These hens were all of the game breed, and of the form I recommend: they had not the benefit of much sun, but no cold wind could come to them, as the surrounding buildings were high; there were many fires about the place, and the cooking kitchen door opened into the yard.

I have always found warmth very essential for making hens lay early in the season. It may be seen, that the lower order of people, who suffer the hens to enter the house, and feed them there, have eggs in much greater plenty

and more early than the farmer, whose hens roost in some cold out-house, or frequently on trees; therefore every thing should be done to keep them warm: the farmer's hens do not want food, but they require warmth and nourishment. For this reason hen-houses should be built in some warm place; the back of a kitchen chimney is well suited for the purpose: they should be open to the morning sun, and if all the day the better; they ought, also, to be spacious, and very light, but exposed to as little cold wind as possible: thatched roofs are much warmer than slates or tiles. Nevertheless, although it is evident that hens require much warmth to render them the most productive, yet, from some cause or other, they will prefer roosting in an open place, such as on the rack in a stable, the beams in a cart-house, or, at times, on trees, as high as they can well get; which may arise either from a natural instinct, being fearful of danger in the night if they roost low, or from having a desire to see about them; or perhaps both causes may operate. However, it appears to me that all animals have a knowledge of their danger; and as it is a custom to take fowls by night from the roost, they would seem to be sensible of it. I have known many small confined houses built for hens over a hog-sty, or some such place, but the hens will seldom, by choice, roost in them; I therefore consider it useless to build a house for hens to roost in, except it be lofty, and have much light; notwithstanding, when they roost on trees, such as yew, fir, in ivy, or among thorns, they prefer shade, as it were to secret themselves. Pheasants exhibit some symptoms of a similar disposition, when roosting in woods and plantations; they seem to have a sense of their danger—being taken by poachers, &c. for though during the summer they will roost in the oak when it is full of leaf, in the winter they constantly prefer some evergreen. I have

observed the very same in fowls, either for warmth or self-preservation.

I have ascertained the quantity of food consumed by the Bantam hens and those of the battle or game breed: there is no difference between them; they eat exactly equal. By way of experiment, I bought a very large Poland cock, and put him to the Bantam hens, taking the Bantam cock from them for a few days, at first, the large white cock consumed more barley; but he soon ate only the very same quantity as the Bantam cock did: thus I could perceive no difference in expense, but much in profit, as the eggs or the carcase of the Bantam would sell for little more than half the price of the other; though the eggs of the Bantam hen when used in puddings, &c. are quite as good, and an equal number will answer the very same purpose; which I should not have believed, if repeated trials had not proved the fact.

Method of preserving eggs for use cheaper than in salt.—This method I have not experienced, but it is generally adopted by pastry-cooks.—Take a quantity of unslaked lime, and put it into a vessel containing water, in the proportion of about one peck of lime to eight gallons of water; stir it up well, and then put in the eggs. They will keep thus perfectly good; but must not be taken out until they are wanted for use, as they will readily spoil. However, I consider the salt preferable, as it will serve for the same purpose for years, or for any other use, if kept in a dry place, which ought to be regarded; and care should be taken that no rotten eggs be put in, as they might injure the others; though I do not know that that would be the case, as I never found a bad egg preserved in salt, and I have used them after being kept twelve months: but great regard should be paid in gathering eggs, not to let them remain long in the nest after they are layed; to prevent this, either mark an egg

and leave it in for a nest egg, or make an artificial one of a piece of chalk-stone: the more quickly they are put in the salt after being gathered the better. Some people preserve eggs in wheat bran;—a method I used before I went abroad: but as the bran is liable to get fusty, and even to spoil the eggs, it is a bad practice.

Hatching Chickens.—When hens are not naturally so inclined the first requisite that may be wanted, is to get them to sit. To effect this purpose, the method to be pursued is this:—take any hen and give her about half a wine-glass of good common gin, after which swing her round and round until she become dizzy, when she will appear sleepy, or as if almost dead; then, having an iron pot ready, that has been set on the fire with some straw in it until rather hot, put the eggs upon the straw, and cover the pot, but so as to leave a space for air, though very small, that the least light possible may be permitted to enter: in a day or two the hen and the nest may be moved to any convenient place, as she will then sit as closely as if nature had directed her. Three weeks is the time a hen sits to hatch her brood. When the chickens begin to come off, it is necessary to watch the hen, taking them from her as directed for goslings, or she will be apt to quit her nest with part only, and leave many unhatched. The chickens should be immediately put into a basket containing some dry wool, with a cloth over them, and placed in the fire-corner, to keep them warm, giving them a few fine white-bread crumbs to peck, and some sweet milk a little warm (new milk from the cow is best). Great regard ought to be paid not to let young chickens, or young turkeys, wet their feet, as it injures them much. When the chickens are all hatched, take the hen to them in the house, and there let them remain, if mild weather, for about two days, in the fire-corner, to keep them dry and warm; then put

them out in some place where they cannot wet themselves, letting the hen bring them into the fire-corner in the night for some days, which is one material point to be observed: afterwards any warm, dry place, will do for them. But early chickens must be kept where there is a fire; for it is needless to attempt to raise them in the cold months without such attention: when so treated they will grow more in one week than in twice the time in a cold place, and the lives of many be preserved. Their food must be oat-meal, made into paste with warm milk, until they are feathered; after that time, pot-liquor will do, but milk is preferable: they must have milk to drink whilst they are young.—This is a full description of my own practice in breeding, feeding, and raising chickens; but having seen, in *The Farmer's Journal*, a very ingenious method published, I will give it at full length.—

New method of rearing poultry to advantage: as communicated to the Society for the Encouragement of Arts, &c. by Mrs. Hannah D'Oyley, of Sion-hill, near North-allerton, Yorkshire.—This lady says: “I keep a large stock of poultry, which are fed in a morning upon steamed potatoes, chopped small; at noon they have barley: and they are in high condition. In the poultry yard is a small building, similar to a pigeon-cot, for the hens to lay in, with frames covered with net to slide before each nest: the house is dry, light, and well ventilated; kept free from dirt, by having the nests and walls white-washed two or three times a year, and the floor covered once a week with fresh ashes. When I wish to procure chickens, I take the opportunity of setting many hens together, confining each to her respective nest: a boy attends morning and evening to let any off that appear restless, and to see that they return to their proper places. When they hatch, the chickens are taken

away, and a second lot of eggs allowed them to sit again; by which means they produce as numerous a brood as before. I put the chickens into long wicker eages, placed against a hot wall, at the back of the kitchen fire; and within them are artificial mothers, for them to run under, which are made of boards about ten inches broad and fifteen inches long, supported by two feet in the front four inches in height, and by a board at the back two inches in height: the roof and back are lined with lambs' skins, dressed with the wool upon them. The roof is thickly perforated with holes, for the heated air to escape. They are formed without bottoms, and have a flannel curtain in front, and at the ends, for the chickens to run under, which they do apparently by instinct. The eages are kept perfectly dry and clean with sand or moss. The above is a proper size for fifty or sixty new-hatched chickens; but as they increase in size, they of course require a larger mother. When they are a week old, and the weather fine, the boy carries them and their artificial mother to the grass plot, nourishes and keeps them warm, by placing a long narrow tin vessel, filled with hot water, at the back of the mother, which will retain its heat for three hours, and is then renewed fresh from the steamer. In the evening they are driven into their cages, and resume their station at the hot wall, till they are nearly three weeks old, and able to go into a small room appropriated to that purpose. The room is furnished with frames similar to the artificial mothers, placed round the floor, and with perches conveniently arranged for them to roost upon.

"When I first attempted to raise poultry in the above way, I lost immense numbers by too great heat and suffocation, owing to the roofs of the mothers not being sufficiently ventilated: and when this evil was remedied,

I had another serious one to encounter. I found chickens brought up in this way did not thrive upon the food I gave them, and many of them died, till I thought of getting coarse barley-meal, and steamed it till quite soft: the boy feeds them with this and minced potatoes alternately; he is also employed rolling up pellets of dough, made of coarse wheat flour, which he throws to the chickens to excite them to eat, thereby causing them to grow surprisingly. I was making the above experiments in the summer for about two months, and during that time my hens produced me upwards of five hundred chickens, four hundred of which I reared for the table or market. A young person of twelve or fourteen years of age might bring up in a season some thousands; and by adopting a fence similar to the improved sheep-fold, almost any number might be cheaply reared, and with little trouble. Hens will readily sit four times in a season; and by sitting twice each time, they would produce, at the lowest calculation, eighty chickens each, which would soon make them very plentiful.

"The long wicker cage is placed against a warm wall, with the heat at about 80° of Fahrenheit's thermometer. I find it advisable to have two or three chickens among them of about a week old, to teach them to peck and eat. The meat and water are given them in small troughs fixed to the outside of the cage, and a little is strewed along from the artificial mother as a train to the main deposit.

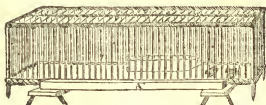
"If the chickens do not readily run under the artificial mother, for want of some educated ones to teach them, it will be proper to have the curtain in front made of rabbit or hare skin, with the fur side outwards, for the warmth and comfort to attract them; afterwards, they run under the flannel one."



The above engraving represents the apparatus called the *artificial mother*, with a curtain of green baise in front and ends, and holes through the top to allow the circulation of air.



Another view of the artificial mother, but without the curtain, to shew its sloping direction, and the interior lining of woolly sheep-skin.



This engraving represents a wicker basket, four feet long, two feet broad, and fourteen inches high, with a lid to open, and a wooden sliding bottom, similar to a bird cage, in which the artificial mother before described is placed. *A*, is a trough to hold food for chickens.

Note.--There is one remark made by this lady which deserves particular attention; I mean where she mentions the occasion of her losing immense numbers; and

again, the necessity of using barley-meal: probably before that time she gave them a greater plenty of the steamed potatoes. Change of food is of wonderful advantage in the fattening or feeding all animals, particularly where potatoes are given. I have tried them with laying hens, finding them generally used in Ireland; even I have seen a pack of hounds kept chiefly on potatoes steamed: but the lower order of people in Ireland use oatmeal for themselves, and I am perfectly convinced the hens partake of their food; as in my trial of keeping hens on steamed potatoes alone, they did not lay so early in the season, nor did they produce so great a number of eggs. Steamed potatoes may possibly be given to advantage in a small degree, though I have my doubts even of that: in the experiment of the six hens making so great a profit with dry barley, notwithstanding potatoes would have been much cheaper food, I think the hens would not have paid so well for them as they did for the barley. And although hens will eat a small portion of potatoes when they have barley to go to, it is doubtful to me if there be any profit attached to the proceeding:—instance my cows eating turnips, vol. I. page 210.

Fattening chickens or fowls.—I have been accustomed to fatten fowls in coops or *pars*: the time they will bear this confinement is about fourteen days: the best food is barley-meal made into paste with the skimmings of pot-liquor, and milk to drink. I have tried them for a longer time than a fortnight, but they then regularly decline in their flesh, and will become a mass of fat. A dark warm place the best.

Capons.—Fattening capons for the London market is a sort of trade or mystery: the chief of them come from Darking, where the art is kept a secret. I have made much enquiry on this subject: it is supposed by some

persons that the feeders give them opium, or the seeds of poppies; but I am informed by a gentleman from Darking, whose veracity I have not the least reason to doubt, that, whatever may have been their former practice, the present method is, to feed them on wheat unground, and give them gin-and-water to drink (the mixture about four of water to one of gin), which they become very fond of: the wheat, being of a dry nature, makes them drink much, and intoxicates them, thereby causing them to sleep:—they are also kept from the light, in some confined place.

SECTION IV.

Ducks.

Ducks are to be raised to as great profit as any of the feathered tribe, requiring little more than plenty of water. They do not eat grass, nor do the young even require corn, if reared with the old duck, as their chief food is reptiles; being particularly attentive in picking up the red ground-worms, and insects of almost every description: they must therefore prove of service, in destroying those noxious depredators, which partly live on plants.—There are various opinions respecting the large earth-worms, as to whether they are injurious to land or not: some people think that what they throw up is their excrement, which, when in the spring dressed on the meadows by a bush-harrow and a roller, is of service, giving fresh soil and life to the plants. But I have my doubts of their utility; for they most certainly live on vegetables, as may be seen in a garden, where they eat the leaves of many plants, lettuces in particular, and in all probability injure the roots of plants as well as the leaf: and where they lie they make holes, letting in the sun, which gives it a power of exhalation, and thereby

draws that moisture from the roots of plants which is required for their support during the summer season.—Ducks likewise destroy the insects that pester horses, cattle, and sheep. I particularly noticed in America, at Colonel Mereer's, Mrs. Mereer saying, they did not keep ducks for some time, as they would not thrive in that country so well as other fowls which do not require water to swim in—for the hot sun causes them to wash in such a manner that it is distressing to see them, at the same time the water is so hot that it appears to afford them little relief:—but, she said, since keeping many ducks they had received much benefit, not having such numbers of flies, and even the mosquitoes were less troublesome. Therefore I think, if it were only for this service, ducks ought to be kept, for the number of insects, &c. they will destroy is wonderful: I have had an instance of about one hundred of them picking up as many of the black caterpillar, or what some people call the black-jack, in two or three days, as would have destroyed forty acres of turnips in a week; and I observe another instance, of Mr. Coke, of Holkham, noting a similar circumstance; consequently I am a great friend to the duck tribe.

But besides that the things ducks naturally live upon while rearing are rather nuisances, with very few exceptions, than otherwise, no fowl can be fattened for the table so cheap, as the best food used for that purpose is mere waste in many places—which will be more fully shewn hereafter. I know but one objection to them, which is, where there are breeding fish-ponds they are very great depredators to the fry of every kind, and will devour all the spawn; on the other hand, fish of some species will destroy them, viz. the pike, or eel, if large, will devour the ducklings: therefore those who have large fish in ponds ought to keep ducklings from them;

and ducks should be prevented going to the breeding-ponds. Ducklings that are raised with the ducks seem to cost little or nothing, and grow as fast as those raised by hens, while their flesh is probably finer, as the wild duck, which lives entirely on reptiles and insects, is bred and fed in that manner; though I believe the flesh of the wild duck derives some advantage from the exercise she takes. When I lived at Asgarby, and kept many ducks, the house, barns, &c. standing on a hill, at a distance from the water-ponds, which had fish in them, the ducks used to fly from the buildings to the ponds. It happened there was much frost one winter, and the ponds were covered with ice, excepting a small place to afford air for the fish, and water for the ducks, geese, &c. which I suppose was not agreeable to them, and many of them flew away: in consequence, the season following, a joint was taken from one of their wings, to prevent them flying. My ducks had been remarked as being finer flavoured than other tame ducks; but, after they were deprived of the power of flying, it was discovered, both by my friends and myself, that the flesh was not so delicious. Ducklings reared with ducks are liable to be frequently destroyed by crows, &c. which is probably for want of cover to the ponds.

The best kind to breed from, in the natural way, is the grey duck, and a drake of the large black kind. The grey duck is the hardiest of any, and the finest flesh; the black duck the largest. By breeding from the grey duck, with the large drake, the offspring acquire some of the duck's flesh, and get the size of the black drake; while the ducklings being of a dark colour, they are not so quickly seen by crows, hawks, gleans, &c. which is one good thing in their favour. In the county of Bucks, where they make a business of breeding ducks so early as Christmas, and some before, for the London market,

the white duck is preferred to breed from, for two reasons:—she stands forcing better than the dark-coloured duck, although much tenderer in the natural state, and worse in almost every respect; the other reason is, when many of these ducks are made fat, at the age of six weeks, they are often full of young feathers, or what are termed pens by the poulterers. The method by which these people make the old ducks lay eggs, is by keeping them up in their houses, a sort of cabins, and they are commonly admitted into their bed-rooms, under the beds, at night, and some rest in the kitchen fire-corner, by which means they are kept warm: their food is raw beef, or other coarse raw flesh. These ducks do not sit their first eggs; they are hatched under hens, or many under turkeys: the latter are made to sit in the same way as is practised with hens, before described: it is said a turkey will hatch three broods, which will engage her three months, as a duck sits one month;—it is wonderful to me how turkeys bear this fatigue, but it at times kills them. When the ducklings are hatched, they are kept warm by the fire-side, without any mother: their food is malt flour and new milk for some days, then barley-meal made into paste with milk; and with this management it is astonishing to what a size and fatness they attain at a very early age. The most certain and the safest way to breed young ducklings, is to hatch them under hens; when they may be taken from the hen and reared by the fire-side, and the hen may be set again.

Food.—I used to give ducklings white bread during the first week, but I have lately found that proceeding wrong. I now give them barley-meal paste at first, with water to run in and drink, which I continue until they are feathered. I have also discovered that ducklings do much better without either hen or duck. A hen will, in

one season, hatch forty ducklings: it is said they require no brooding, and yet great warmth in their early stage; which, indeed, is evident, as they will all crowd together near the fire, to warm themselves, in a most extraordinary manner; and whilst they are kept in this way, there is seldom any loss among them. Although ducks delight much in water when grown up, it seems that the sort of exercise the old duck takes in the morning early is too cold for the young, as it is seldom that large broods are reared by old ducks, that have the liberty of running in the meadows. When I lived at Aby Grange, there were many wild ducks hatched in the woods; the places they chose for their nests were in the stumps of trees, a kind of pollard, about five or six feet from the ground, which they prefer as a security from the depredations of foxes, &c.: there were fine large ponds of water in the woods; altogether seeming as if the trees had been cut and the ponds made for the purpose of preserving the ducks. There was generally a run of water from each pond, which after passing some meadow, proceeded thence to a large drain that emptied itself in the sea. Those ducks would bring off a brood of ten or twelve; but when they took wing there were seldom more than four, six, or eight: thus the wild duck seems to experience great loss in rearing her young. The cunning device they practise to save their young is curious:—early in a fine summer's morning I have, in a meadow, discovered the old duck, and curiosity has led me towards her; when I approached near to her, she would take wing, fly up, fall down as if she were wounded, and then run tumbling over and over: this was to allure me to attempt to take her, to preserve her young, she flying the direct contrary way to that which the ducklings were going. I have been much entertained with the sagacity of the old duck: and the young ones would not run together

as tame ducks do, nor in the same direction for the wood or water, but all single, so that there could be only one taken at a time.

Ducks might be rendered very valuable where there is plenty of water, could it be contrived to form an island, and plant it with shrubs and trees, having, in proper places on the island, small houses, with separate nests for the ducks to lay in, and hatch their young.—Such a place would preserve them from foxes and other destructive animals.

An experiment tried in fattening ducks.—When bought and put up, the heaviest weighed 3 lb, the lightest 2 lb 14 oz.; weighed seven days after, when the largest had gained 6 oz., the smallest 4 oz.; they were again weighed after a lapse of seven days, in which time they had gained not more than 2 oz. Finding they did not increase as at first, I conversed with some poultry feeders, who told me that corn of no kind was proper for fattening ducks; but that middle-guts (which are the small guts of sheep) were the best food for the purpose. I accordingly got some of them, and, as directed, boiled them, putting a little barley-meal to the water to form a sort of paste. This they ate very greedily, and rather increased in fat, but very little in weight; the reason was, they had been in a confined state too long. The result of this trial was as follows:—

<i>Living weight, before killed.</i>		<i>lb. oz.</i>
Drake		3 11
Duck		3 3
Total .		6 14
<i>Dead weight,</i>		<i>lb. oz.</i>
Blood in the drake		0 3
Ditto in the duck		0 4

	<i>lb. oz.</i>
Brought up	0 5
Feathers and wings, 4 oz. each	0 8
Carcase, drake	1 14½
Ditto, duck	1 14
Giblets in both	1 7
Waste	0 13½
	<hr/> 6 14 <hr/>

Weight of bone in the two, 8 oz.; giblets, 3½ oz.:—a little more than 2 oz. of bone to 1 lb of flesh, not being sufficiently fat.

These ducks I purchased in Newgate-market at 1s. 9d. each (I bought one at 1s. 6d., and a very small one at 1s.): my whole stock was fourteen. When kept on oats, the fourteen ate half a peck a day, costing 9d., which is 4½d. a week each.—The expense and produce of the couple were as under:—

<i>Expense.</i>	<i>s. d.</i>
Three weeks' keep, at 4½d. each	2 3
Cost 1s. 9d. each	3 6
Total	<hr/> S. 5 9 <hr/>

<i>Produce.</i>	<i>s. d.</i>
Sold to the poulterer for	5 9

Note.—The poulterer took the feathers for his trouble; however, although these ducks did not fatten properly on oats, they paid for what they ate. When they had been fed on middle-gut for a few days, some of them did not eat oftener than once a day, others very little: barley and oats were offered to them, but of which they seldom ate.

The butchers make ducks very fat by giving them raw meat cut in small pieces: though they say the meat is better, after being cut small, if boiled with a little pollard or barley-meal. Those ducks are mostly at liberty, and have access to water to swim and wash: farmers' ducks will also get fat in fold-yards, at corn-stacks, &c. and keep their fat, which ducks will not do when confined. It is clear to me that the guts are a more suitable food for ducks than corn, as they may be often seen to leave the latter, and run to devour a worm, which the guts much resemble: those people who raise early ducks, constantly give them flesh.

I observed one thing remarkable in my ducks.—The very small duck which I bought for a shilling, during the time it continued to eat oats, seemed to consume more than either of the others, though it did not increase in weight: I was, therefore, tempted to kill it, and throw it away, supposing that, notwithstanding it devoured so much, it would never make itself eatable. But when the middle-gut was given, it was seen to void worms, very like those in children; and it then fattened, gaining 1 lb in fourteen days: thus, I have reason to believe, the worms, gnawing its intestines, were the cause of this duck not thriving. After the guts were given, in all probability the worms lived on *them*, and hence passed through the duck with them; for when it was killed, I was very particular in examining the intestines, in which there was but one worm found, and that in such a state that it must have been very shortly voided. This idea is corroborated by the practice of the Americans, who give their horses treacle and milk for the worms to prey upon, to cause the horses to void them with their excrement.

I then got two other ducks, which in fourteen days increased at the rate of about 8 ounces a week, fed on

the middle-guts, with a very little barley-meal, the cost 1*d.* per week; the statement and result being as under:—

<i>Living weight before killed.</i>		<i>lb.</i>	<i>oz.</i>
Drake		4	2
Duck		3	13
Total . . .		7	15

<i>Living weight when put up.</i>		<i>lb.</i>	<i>oz.</i>
Drake		3	0
Duck		2	10
Increase		2	5
Total . . .		7	15

<i>Dead weight.</i>		<i>lb.</i>	<i>oz.</i>
Drake		2	10
Duck		2	1
Blood		0	6
Feathers and wings		0	8
Giblets		1	9
Waste		0	13
Total . . .		7	15

Bone in the drake, 4½ ounces; in the duck, 3½ ounces: in the giblets about 1½ ounces each set: which bears a proportion with other animals made moderately fat.

These two ducks cost 2*s.* 2*d.* each, although not larger than the two before mentioned: their food cost about 1*d.* a week; therefore, the account will stand thus:—

<i>Expense.</i>	<i>s.</i>	<i>d.</i>
Two weeks' keep, 1 <i>d.</i> each	0	4

	Brought forward . . .	0	4
Cost 2s. 2d. each		4	8
Profit		3	2
	Total	<u>S. 8</u>	<u>2</u>

	Produce.	s.	d.
Drake, if sold, worth		4	0
Duck, ditto		3	6
Feathers and wings		0	8
	Total	<u>S. 8</u>	<u>2</u>

SECTION V.

Pigeons.—The best Method of building Cots, of raising, feeding, and treating the Stock, &c.

ON this subject my experience, as a farmer, has been great, having raised three new cots, and improved an old one, with extraordinary success. My first ideas, on the nature and properties of pigeons, I received from a rat-catcher, who was employed by an uncle of mine. At that time I intended to build a cot and raise a flock of pigeons, when, conversing with the man on the subject, he objected to nests formed of bricks, and observed, that those made of wickers, like basket-work, were the best: he mentioned where there was such a cot to be seen, which he was going to repair, and that if I would go whilst he was working, I might inspect it. I accordingly went to see it, and found it very large, with a prodigious stock of pigeons; it was, indeed, the largest and the best I have ever seen. The place where this cot was situated had formerly been a market-town, and the building appeared to have been a sessions-house, with a

market-house under it. The wicker nest, although new to me, struck me as being perfectly right, considering that the pigeon when in a wild state makes her nest of small bits of stick, in a very careless, open manner;—and that person will not err much who takes nature for his guide. It is a doubt with me, if the nature of the pigeon be not such as probably to require that air should come to its eggs while sitting; and the air may also afford some benefit to the young which has not yet been noticed: however, I think there is an advantage in the nest not being inclosed, by the pigeon being enabled to see about her, more in the way the wild pigeon does. But in this instance there appeared to me to be many obstacles to overbalance the advantages: in the first place, this being at a small village, there were two public-houses, by which men and boys, on summer evenings, were generally playing at quoits; again, a blacksmith's shop was so near, that the fire flew out almost to the bottom part of the cot; add to which, many children were constantly playing under it: all these things I thought must disturb the pigeons. Making these remarks to the rat-catcher, he said that pigeons delighted in a noise, and were fond of company: this seemed true, as I had known many cots do very well among other buildings, such as a garret near a chimney, or some crowded place over stables; while, on the contrary, I never knew cots at a distance from buildings so kindly resorted to by pigeons. There was likewise a prodigious number of starlings, which I had understood were enemies to pigeons, and had heard it asserted that they destroyed their eggs; but this man said, that starlings did no other injury than taking up room: and of this there appeared positive proof, as there were in that cot many starlings with the pigeons. He remarked that owls, rats, cats, weasels, fumarts, squirrels, are all bitter enemies to

pigeons, and will readily banish them from any cot; on which account it becomes necessary to examine the cot once a week, at least, out of the breeding season, for fear any of those depredators should get in: but, he further stated, he had a device by which, if pigeons were, by any mismanagement, driven from the cot, he could cause them to return.

Having obtained this information, I built my cot at Claythorpe, of bricks, and afterwards put in the nest, composed of laths and mud or clay, finding the wicker-work very expensive. I did not inclose the nests in front, because I then thought (which I am now convinced is true) that pigeons like to be more at liberty than the general form of the nests in cots admits. The cot being complete, the next consideration was, what kind of stock to put in; and in this the rat-catcher advised me to be very circumspect in my choice:—not to choose light-coloured pigeons, as they were not so hardy, and the hawks, gleads, &c. would see them at a much greater distance when in the fields, and picking up seeds in the stubbles; and to prefer young pigeons, of the harvest flight, as those bred at that time are the stoutest for the winter, and have seven or eight months before the time of breeding: the spring flight have the hatching season to encounter, and sometimes they will breed in the harvest, but never to do any good.

Finding this man's reasoning on the management of pigeons to be founded on sound judgment derived from experience, I determined to follow his advice as nearly as possible: and I accordingly got four dozen young pigeons, of the harvest flight, from a farmer about six miles from me;—which number the man told me was sufficient to begin a cot; and he at the same time advised me to get them from a distance, as they would not be so likely to be tempted from their new home. He told me

to feed them with small wheat, hemp-seed, or tares, or a mixture, which I did; and to keep them confined in the cot until they could fly strong, which would be in about fourteen days. All this I strictly observed, giving them their liberty at the end of a fortnight. They rested very contentedly for about the same time, when, all of a sudden, they flew away, and were seen no more about the place. The man having informed me he could, by a device, cause pigeons that had deserted a cot to return, after waiting about fourteen days, during which time there was only now and then a single pigeon seen, but no appearance of the flock, I sent for him, and the next day, early in the morning, he came. He first filled a large pot with water, and taking some ingredients out of his pocket, put them into the water, set the whole on the fire to boil, and kept stirring them until they were dissolved. He then took the mixture into the dovecot, and, with a painter's brush, laid it on very carefully both inside and out: after which he got a ladder, and, in the same manner, washed round the window, or aperture, where the pigeons entered, with the mixture. In spite of the assurance given me by the operator, that my pigeons would soon return, and even bring more to the cot, I did not place implicit faith in his predictions, and could not avoid expressing some doubts of the attracting power of his nostrum. However, he consented to stop until the next day, when the pigeons were to make their appearance, upon the terms—No pigeons, no pay. About eleven o'clock the next day a single pigeon came, and, at a great height, flew round and round for some time, as if afraid to alight:—from which I inferred, that an owl, a cat, or some other unwelcome visitor, had disturbed them during the night; and I therefore think it might be advisable to adopt some contrivance to prevent owls, &c. getting into the cot at nights, until the

pigeons are settled; but then the obstruction must be removed soon in the morning, as pigeons are very early risers. At length this pigeon alighted on the top of the cot, cooed, repeatedly rubbed its nib where the ingredients had been applied, and at last flew away: about three o'clock the same day, all my emigrants returned.

Without any addition by breeding, my stock increased, so that by the breeding season I had more than double the original number; and at the spring flight I had a productive cot, of which I took all the young: at the harvest flight I let many pairs fly, but took all the single ones, which I have reason to think proper in increasing the stock, as pigeons are very constant, and always in pairs. My stock soon grew numerous, the pigeons settled, and never afterwards forsook the cot:—and a very good cot it proved, with the addition of the colony of strangers, which had been enticed to take up their residence by the fascinating application used by the rat-catcher. I could not prevail on him to disclose the secret; but, by the smell, I had no doubt the mixture contained *asa-fœtida*, and salt. Thus the cause of their continuance, after they did return, is obvious; but how they received their first knowledge of the attracting ingredients appears strange, as they seemed to have entirely forsaken the cot: though it is probable they had some kind of watch on the place, unperceived by me. That pigeons like the smell of *asa-fœtida* is evident, and their excessive fondness for salt is well known (which will be fully treated on hereafter): it would seem, therefore, that the cause of their return was, the single pigeon by having conveyed the smell to the flock, brought them back, and the salt induced them to remain. And the same reason may be assigned for the fresh or strange pigeons accompanying mine home;—my pigeons going into the fields to pick up their food, and carrying with

them the scent of the mixture applied by the rat-catcher to the inside of their nests, they drew others about them, which they brought to my cot, where the salt still remaining (for, as the nests were composed partly of mud, it would continue long upon them), the gratification which the strangers derived from picking it was so great, that they were led to desert their respective homes.

As this man had so fully convinced me of his skill in pigeons, I carefully attended to his instructions concerning the management of them. He advised me never to enter a cot later than mid-day; as about twelve o'clock, when the sun has crossed the meridian, the pigeons regularly return to their abode, after which many of them remain at or near home; but that early in the morning, or at any time till twelve o'clock, the young might be taken. Whatever repairs are necessary, either to the building or to the nests, should be done before noon; for if the pigeons are disturbed after twelve o'clock, many of them, or even the greatest part, will not enter the cot that night, but will sit on the ground, or on the buildings: and those that do go in will not rest contentedly the whole night; they will keep moping about, flying in and out, and if in the breeding season (which is the most likely time for persons not informed to make this mistake), either a number of eggs may be spoiled, or several young ones starved to death, and thus a cot be materially injured, if not destroyed, which I have known to be the result. He likewise cautioned me not to let the first flight fly to increase the stock, but to take every one of them, as it would be only filling the cot with weak, unproductive pigeons: the bending time is then approaching, which is between the spring seed-time and the harvest, a period when food for pigeons is scarce. It is necessary only during this time to allow food to

pigeons, but it should be given by three or four o'clock in the morning; for they rise so early, that if you serve them much later it will probably prevent them from working that day, or taking their intended route, as they will sometimes go many miles from home. Pigeons are excessively fond of the seed of hemp; and it has been well authenticated, from frequent observation, that at the season of sowing that seed there have been pigeons wounded in the isle of Axholme, which have been found dead in Nottinghamshire, nine miles distant from the nearest spot where hemp was cultivated; and hemp is often sown before the seed-time is perfected in Nottinghamshire. It is not common to shoot pigeons; indeed there is an act of parliament against so doing; but they are so extremely fond of hemp seed, that thousands of them will fly from a distance of several miles, and would peek up the seed before the harrows could cover it, if they were not shot at. Pigeons can fly very strong, and carry much shot: thus, pigeons have been found dead in the cots in Nottinghamshire, the crows of which, being opened, contained hemp seed, which it was known could only have been obtained many miles off: this proves the great necessity of feeding pigeons early, that they may go their intended route, and get home by, or soon after, mid-day. Pigeons are better not fed at all than late; as they would afterwards be liable to wait, expecting to be served, and thus be prevented taking the exercise nature requires, merely hovering about home all day. If pigeons are fed during the whole of the year, they will not breed so well as when forced to seek their food—meaning what are termed the real English wild dove-cot pigeon, without a cross of the tame or French pigeon, and some others, that breed every month: those I am now speaking of, breed but twice a year, for about a month or six weeks

at each time. It is their nature to range much, when they pick up in the fields what is pleasant and wholesome to them, and from the commencement of harvest to the end of seed-time they find plenty of food: they will not, by any means, pay to be fed, as will be hereafter shewn.

At the latter end of every flight care should be taken to destroy all those eggs that were not layed in the proper season. The periods at which this kind of pigeons produce their young are, generally in the months of April and May, what is called the spring flight; and the harvest flight in September and October: but as harvest and seed-time vary in different countries, so also does the pigeon in producing the flights.

It is necessary to pay great attention to cleanliness in the management of a dovecot. A week or fortnight before the pigeons begin to build, the nests ought to be carefully examined and cleaned; for if any of the young die in the nests during the summer, they necessarily become putrid, and maggots are sure to breed in them: thus the disagreeable smell that is emitted must prove injurious to the inhabitants of the dovecot; nor can pigeons be of so fine a flavour, when reared in a stinking, dirty place. Pigeons are tenacious of their nests, as appears in the conduct of the wood-pigeon, which will breed for years in the same tree, and the female always forsakes her nest with regret; but, unable to endure the filth and stench of her dead offspring, she is obliged to quit the eggs she has layed for a second brood, and thus the prime of the season is lost. Every summer, after the first flight is over, all the nests should be made perfectly clean, and the dung entirely taken away; but this business should never be done late in the morning. It is likewise necessary to destroy the eggs, and clean the

nests, at the decline of every season, and at the beginning of each flight.

In the preceding pages I have described my practice with my first cot, at Claythorpe. When I removed to Asgarby, I found a cot there so neglected, as to have every appearance of being going to decay: the tenant who had left the farm had been, during the winter, cocking the pigeons, viz. killing the cocks and preserving the hens, which I am told is sometimes practised; but for what reason I am at a loss to conceive, as my pigeons were always in pairs; it must, therefore, be a very bad proceeding, by tending to break the peace of the house. The roof was rotten, and the thatch so bad, that it let the rain in, which starved the young birds to death: the consequence was, I had the old roof to take off, a new one to put on, and to cover it in, which occupied some days, and I was afraid would banish the pigeons; but by adhering to the rule before prescribed, of not working after twelve o'clock, I have reason to believe not a single pigeon deserted the cot. In about two years, or three at the farthest, I have taken six dozen of fine young pigeons in a morning, without looking into a nest. Those pigeons used to breed all round the floor; and the young ones that were learning to fly, before leaving the house, would raise themselves on a table, placed on purpose for them, and which is a necessary piece of furniture in a dovecot. The nests in this house were formed with bricks, and inclosed in front; and it was from the pigeons laying on the floor in preference, upon or under the table, and upon the wall plate, that confirmed me in the propriety of letting pigeons look about them. By managing this cot as before directed, it soon became completely filled. It was a low, wide cot; the walls were about seven feet high, eighteen feet broad, and twenty-two

wide : there were not many nests, in some parts of the walls none.

The next cot I stocked was at Doncaster ; I made it of an old summer-house, about ten feet square. Partly by way of ornament, and from an expected profit, seeing many pigeoneots built high, I raised it, carrying the walls up about twenty feet in height, and formed the nests of bricks, inclosed in front, as they are in general. But this form did not answer ; the house being narrow, and the lover, or aperture, at the top so high, it was like a well, on which account the pigeons, when at the bottom, could not get quickly out (for, as may be observed, there are no birds, especially pigeons, that can, when they fly from the ground, rise perpendicularly) ; and if any thing alarmed the old pigeon when at the bottom of the cot, in flying up hastily she was apt to dash herself against the walls. I found, also, that the pigeons never built their nests in the lowermost holes, that there were many of the young ones dead at the bottom, the craws of which being empty, it was evident the old pigeons had neglected them. These circumstances induced me to put in a floor about ten feet from the top of the wall ; after which, the old pigeons regularly fed their young when they happened to fall down, none perished by hunger, and many more were produced. I fed these pigeons throughout the year ; for, having many fowls of different descriptions, and there being much small corn, such as the swimmings of barley from the malt-house, which were partly seeds, and other grains scattered about, it was impossible to prevent the pigeons from feeding at home. This likewise brought many strange pigeons to the cot during winter, and when the breeding season was over ; but they seemed regularly to return to their respective homes to breed : therefore, I

obtained no further profit from them but their dung, and it proved a losing business on the whole. Altogether, this cot was less productive, considering the number of pigeons, than any other I ever possessed. Under these circumstances, the tame pigeon, or a cross, would have been more profitable, as they would have bred all the year; thus, for persons who mean to feed their pigeons constantly, the tame breed are the most proper stock.

When I settled in America, I there stocked a chamber with the tame, or what in that country is called the French, pigeon. The gentleman who gave me the stock had a great many very fine pigeons of this kind in a chamber, where they had no nest formed, but merely boards put up like shelves in a pantry, one above another, quite open, with a ledge before to prevent the eggs from rolling off; and his pigeons had free access to a granary of Indian corn, which rendered them remarkably fine: from the experiment tried with the cock and six hens, this may be the cheaper method, and more proper, as when they are served they greedily peck up more than is of any real service to them. The wild pigeon of the cot must gather her food by smaller quantities at one time; hence, when pigeons have food to go to at pleasure, they will not feed so greedily. Seeing that this gentleman's pigeons prospered, I put up boards, and gave my pigeons Indian corn in a vessel in the cot:—this, by the by, is improper, as it is a temptation to rats and mice; but I had no other convenience: thus I experienced some trouble in keeping those vermin out; and, although they never got in but once, I know it is wrong to put the food in the cot, as the gnawing and scratching of the rats during the night must disturb the pigeons: some separate place, therefore, should be appropriated for them to feed in. However, my pigeons

notwithstanding prospered, and were very prolific in the chamber, which was low but wide, so that they could fly in and out with ease.

Again, in Ireland, I crected another chamber over a bake-house, having one gable-end wall next the chimney, against which I formed nests, placing a sort of table for the young pigeons to fly upon and run about, and underneath, on both sides, and at the end, I made open nests of laths and mud:--this is a very good way. These pigeons prospered amazingly; they seemed to prefer the nests having the most light. I began my stock with only three dozen, which I fed and kept confined about fourteen days, when I opened the apertures, and the pigeons never attempted to leave the cot: but I applied the *asa-fœtida* and salt, as there were many pigeons about the castle that much annoyed Lady Conyngham, and which she wished to be rid of; and this nostrum of the rat-catcher's soon attracted not only them, but likewise many others: I therefore think it advisable to apply the fascinating remedy when a cot is first stocked, to prevent the pigeons straying when set at liberty.

There are many kinds of tame pigeons, all of which, though nearly of the same nature, differ much from what I term the wild pigeon (not meaning the wood-pigeon). Being naturally idle, they will not leave their homes as the real English dovecot pigeons do, nor will they forage for their living; therefore they are improper for the farmer: in fact, they only suit to keep in boxes or small places, in towns and cities; hence, although they produce many young, by breeding once a month, and there is consequently an accommodation and convenience attached to them, as they must be constantly fed, they produce no profit.

I know an instance of a cow-keeper having about four dozen of these tame pigeons, or rather a cross, but of

the kind that breeds every month, of which he kept a regular account of the expense, and profit of the produce, for twelve months: he fed them with tares; but they had, besides, the grain-waggon to go to every day, and could take as much of the grains as they chose. The statement at the end of the year stood thus:—

	<i>Expense.</i>	<i>L. s. d.</i>
Tares		4 8 0
<hr/>		
	<i>Produce.</i>	<i>L. s. d.</i>
Pigeons sold in the winter at from 1s. to 14d., and in summer at 9d. each		4 4 0
Lost		0 4 0
<hr/>		
Total		L. 4 8 0
<hr/>		

From this experiment it plainly appears that the tame pigeon will not pay for keep: but the true English pigeons, if properly managed by the farmer, will pay, even if he serve them in the bentling-time, as he may save the seeds of weeds, and some little light corn that will be intermixed among them, when he dresses his corn; for which purpose there ought to be a bin provided in the barn, to be handy, otherwise the thrashers will be apt to throw them into the fold-yard, rather than carry them to a distance. Thus two good purposes are answered:—first, by preserving the seeds for the pigeons, which furnish the farmer's table with their young, while the dung, when properly applied, brings forth more abundant crops, amply paying for the small corn; and secondly, the seeds of the weeds are kept from being interspersed among the dung, which is a valuable consideration, though too frequently neglected. In my own practice, when I lived at Asgarby, by acting as here di-

rected, cropping about one hundred acres of corn crops, and saving the small corn and seeds, I had an abundant supply of food for the pigeons in the benting season. For this reason, the true English dovecot pigeon may be kept to profit; as I had generally from a hundred to a hundred and twenty bushels of dung, worth 1s. 6d. a bushel, or the whole about 7*l.* or 8*l.* besides the young pigeons, worth as much or more. This kind of pigeon will even do without feeding, for there are many very good cots of these pigeons that never are served, particularly that at Burwell, the largest and best I ever saw, it being near a mile from the house of the gentleman who had the profit of it: indeed, I have some doubt whether they naturally require to be fed, as all or most other birds have this season to encounter, with a seeming small supply of food, such as the rooks, wood-pigeons, &c. which likewise eat corn, and are healthy and breed well without any assistance from the seed-time till harvest. The pigeon is also seen to peck up, during the winter, the seeds of weeds among the stubbles, and in the summer those of different plants in the meadows, which may be more wholesome than corn at that season. Persons who keep birds in cages find it necessary, for the preservation of their health, to gather particular plants, when in seed, for them. Therefore, for these reasons, it seems needless to feed the English dovecot pigeons, or to be at any extraordinary expense with them: excepting on farms where seeds can be collected in the dressing of corn, which may be of service; but in that case it is essentially necessary to feed them very early in the morning. I knew three instances, in Yorkskire, in which the occupiers of cots were of opinion that their pigeons had been injured by feeding, they having nearly given over breeding. However, in breeding and feeding, great regard ought always to be paid to nature; thus, it seems to me, the seeds in

meadows may be their proper food, as they are at that time casting their feathers, or what is termed *moulting*. But the tame or French pigeon requires very different treatment, as she does not go far from her home, nor is she often seen in the meadows, or even on corn stubbles. When I lived in America, my pigeons were of this kind : and though my corn stubbles were at only a small distance from the cot, they'seldom were seen on them ; but, as they are continually breeding, they have little time to seek food, and therefore require to be fed.

Building cots—From my experience I have been enabled to determine, that the house should be wide, from twenty to thirty feet every way ; if a ground floor, six or seven feet wall is high enough. When a chamber only, it should be of the same width as the building ; and as there may probably be two gable-ends, four feet wall would then be sufficiently high. The roof should be flat, for the accommodation of the pigeons sitting upon it ; and if some pantile laths are fixed up on the roof the better. I should prefer having the north-east end a gable, and the other three sides flat, so that the pigeons, when sitting on the roof, can turn with the sun. The openings or apertures ought to be wide, that the pigeons may get out and in with perfect ease ; otherwise, when they are frightened, they are apt to hurt themselves. Inside may be a sort of square erection, about ten feet every way, and as high as the walls ; it should stand in the middle of the cot, having nests formed on every side ; and the top part must be covered, to make a platform, or large table, for the pigeons to light upon, and to assist the young ones on their first taking wing, and in getting out, for they delight in running backwards and forwards on something within the house. Rafters laid across the house are serviceable, for the pigeons to rest upon. The form of the nests has already been described ; but I am doubtful

whether, in making them of laths, there be any necessity for mud; they would be more lightsome and airy if without, and more like the wood-pigeon's nest: a single board, like a shelf in a pantry, having a ledge on the fore side to hold up the nest, as it is so carelessly made that the eggs are apt to roll off, is sufficient. Another advantage attending those shelves is, there being no occasion to touch the eggs, as in the old way, by putting the hand in to feel for the young; for when the eggs have been touched, I have reason to believe the pigeons will sometimes throw them out: if the eggs of some birds are touched, they will even desert their nests. Where there are shelves one above another, divisions may be made, a foot asunder; but I doubt if there be any occasion, for I saw in America a very productive cot having shelves without divisions: and I have known pigeons prefer making their nests on rafters or upon the top of the walls, where the nests were quite open one to another.

Feeding.—So much has been already said on this subject, and many opinions given, that it is almost unnecessary to say more; but the fascinating power of salt being very great, I shall mention one other instance.—When I lived at Doncaster, my gardener having been told that salt was a good manure for garden crops, especially for forward peas, he sowed six rows in the garden, with two of which he put salt in the drills; these two rows the pigeons immediately attacked, and were so audacious, that they would alight and scratch them up even when I was in the garden, not meddling with the other four rows: as I did not know the secret, I was surprised, and at a loss to conceive what could be the reason. The gardener sowed the drills again, with the same result. I then had the rows rodded, thinking the pigeons would not push in among the rods; but to no effect. Remon-

strating with the gardener, to ascertain the cause, he then told me, he had put salt into the drills;—which prevented any crop being raised on that ground during the summer. From this experiment, therefore, I am of opinion, that pigeons can smell salt at some distance, and that salt alone will allure them, without the *asa-fœtida*: this, indeed, seems to have been long known, as there is an act of parliament against having in pigeoneots what is called a *salt-cat*, which I suppose is a cat skinned and salted, or probably any other flesh that will retain salt would answer the same purpose. For feeding tame pigeons, which is absolutely necessary, hemp seed are the best; peas, pigeon-beans, tares, wheat, barley, are good food; so are brewer's grains: oats are the worst.

Manure.—When the dung of pigeons is intended to be used as a hand manure, it is a good way to strew ashes, or any dry materials, at the bottom of the cot; and when covered with dung about two inches thick, scatter on some more ashes, the combs or dust of malt, &c.: continue so doing during the whole of the season; and then, when the manure is shoveled up, the ashes or other dry materials will mix with and cause the pigeons' dung to separate, after which, if it lie in the cot on a heap for a few days, it will heat, and the ashes or other substances will absorb the moist particles of the dung. It should then be removed to some barn floor, or other convenient place, and repeatedly turned, till perfectly dry; then it must be thrashed with a flail or beaten fine, sifted, and the lumps bruised: when that is done, it is ready to sow on the land as a top dressing. If sown on white corn, barley receives the most benefit: it is best sown with the seed, and harrowed in. Some people sow it on wheat, which is wrong; I have suffered much by that proceeding, as it at times causes the mildew.

I prefer using this manure to the turnip or rape crop. Chaff is sometimes mixed with this dung, but that is by no means advisable, as the chaff is very liable to have the seeds of weeds in it.

When pigeons' dung is prepared as above directed, about thirty bushels an acre will be a proper dressing for barley, supposing about one third in weight to be ashes, &c.; for sixteen bushels an acre, of the pigeons' dung alone, will be of more service when pulverised, than double the quantity thrown on in lumps: if not properly broken before it is used, the lumps are too hot for any crop, and will burn the very roots of corn; or otherwise will render some plants too luxuriant, producing much straw, and the grain thin and defective.

The most advantageous method of applying this dung, is for turnips or rapes, made up in a compost hill:—first lay fold dung about two feet thick, and thinly scatter that over with the pigeons' dung and ashes; then lay two feet more of fold dung, and cover that as before: continue so doing until the heap is about four feet and a half or five feet high, after which, inclose the whole of the hill on the sides with earth, about eighteen inches or two feet thick, and lay a covering of mould at the top about two or three inches in depth:—the hill ought to be about six feet wide. This composition will ferment very strongly, and the pigeons' dung and ashes will in part absorb the juices of the fold dung, which is supposed to be wet at the time; for the dung of pigeons is of so strong a quality, that it is used in some parts to wash coarse linen, woollen stockings, &c. Hens' dung, and the dung of hogs are somewhat of the same nature: the dung of hogs, with chamberlie, was some years back so much in use for washing among the lower order of people, and the dung of cows for fuel, that there was a saying in Lincolnshire, “Pigs dung sope, and cows dung

fire." The hill when made should have a piece of stick thrust into it, to examine the heat; and when it begins to cool, it must be immediately turned over, and the earth, mould, &c. at the bottom and sides, all well intermixed together.

I am of opinion, that about sixty bushels of this compost applied to the turnip crop in drills, as directed in the new EXPERIENCED FARMER, vol. I, p. 325, will produce as good a crop as, if not better than, ten or twelve cart-loads of fold dung used in the common way.

SECTION VI.

Guinea-fowl.

THESE are more profitable than many other birds, laying a very great number of eggs; but they are rather of a wild nature, and make their nests in very obscure places, such as in hedge-bottoms or bushes, among weeds, &c. It is said they will not hatch their young, which must be erroneous: however, though I kept some of them a long time, I never knew an instance of one of them wanting to sit; but that may arise from their eggs being taken from them, or from their laying in places where the eggs are liable to be destroyed. It appears to me, they will lay forty eggs or upwards before they stop; which is somewhat extraordinary, as they never could cover that number to hatch them. I have raised many of them under hens: they are not a more tender bird to rear than chickens. It is the opinion of some people, that when the cock birds put out a bit of horn on the top of the head, they are apt to die; but I never experienced any thing of the kind, and I therefore think them well worth raising. The eggs are one month hatching; and when the young come forth, their food, for the first two

weeks, is white bread steeped in water; afterwards corn, the same as other fowls. They lay eggs all the summer; but none in the winter, as hens do: the eggs are very fine for all uses; few equal to them, and none superior. After they are grown up, the chief of their food seems to be insects and reptiles, or seeds of grass. Their flesh is very fine, nearly equal to that of the pheasant; and, what makes them more valuable, they are most delicious when the season for game is over. These birds are of a beautiful blue colour, and some are mixed with white: in size they are as large as the largest fowls, commonly weighing from 4 to 5 lb; sold in London at about 3s. a piece when alive, and by the poulterer, when made ready for the spit, at from 10s. to 15s. each.

SECTION VII.

Pea-fowl.

THE cock bird is remarkable for his beautiful plumage: he has a very long tail, diversified with variety of colours, and adorned with many marks, at equal distances, resembling eyes; he has a little tuft, or crown, upon his head, like a bushy tree: his wings are mixed with azure and gold colour. His cry is very shrill and disagreeable. His flesh is reckoned coarse eating; and it is asserted that it will not corrupt, or stink: several experiments have been tried, wherein it has kept a whole year without putrefaction. He is a bitter enemy to the young pea-chickens, or any other fowl's young; and will inevitably kill all that come in his way: it is even said, he will destroy the eggs of the pea-hen if he find the nest.

The hen does not lay many eggs, and is particularly secret in making her nest, constantly choosing some obscure place: when she brings off her young brood, she keeps a very good look-out, to avoid being observed by

the cock, for which reason she continues near some cover, plantation, &c. She seldom rears more than two or three of the young, and they require very little feeding to raise them; indeed, the hen and chickens are not much seen until the young are got strong. Some people consider the hen fine flesh, but I think her very indifferent.

These birds are kept for show or ornament, as there is but little profit attending them, or expense, so far as relates to their support: but, where they have opportunity, they will commit great depredations on the pea crops in gardens, and are very destructive to young turkeys, ducklings, chickens, and all young fowls of every description.

CHAPTER XI.

B E E S.

SECTION I.

The kinds of Bees in a Hive, their domestic Economy, and Produce.

THE advantage arising from keeping bees is sufficient to render them worth every person's attention, as their produce is obtained from sources which cannot be turned to profit by any other means, viz. from the blossoms of almost every plant—the flowers in the garden, the bloom of the orchard, and of all kinds of grains, with the sweet juice of trees, termed honey-dew. What an immense sum of money might be raised by these industrious insects!—and that by a set of people, one part of whom are at a loss to kill time, and neither assist in agriculture or manufactures. Where bees are kept, a garden of flowers becomes of great value: indeed, the management of a garden for the use of bees, by raising flowers of the most early and late kinds, gathering the seeds, sowing, planting, transplanting, &c. would make the employment continual, like the management of an agricultural farm. Then, how delightful to see these industrious creatures at work! which gratification is easily obtained, by having a flat-topped hive with a slider, and glass under it: while the honey may be taken away, by small quantities, until the time when it becomes necessary that the bees should lay up a store for the winter. This would be like the amusement of a stock farm; and the profit attached to it would be great, considering the capital laid out in

stock. I have heard Mr. Wildman say, he has taken 70 lb of honey from a single hive of bees during one summer, and they had still a sufficiency for themselves: some of his honey he sells at 3s. a pound.

There are three sorts of bees in every hive, viz. the queen or female bee, the drone or male, and the common working bee. The queen is very different from the rest, both in shape and colour: her body is longer than that of the drone, neater made, and tapers to the extremity; she has very short wings in proportion to her size; and her belly and legs are of a brighter yellow than the other bees. Like the common working bee, she is armed with a sting, but never makes use of it unless greatly irritated. Without a queen, bees can never prosper, as she alone is the breeder. Some writers affirm to the contrary, and fancy the working bees equally breeders; but these assertions are manifestly absurd, and contradictory to the observations of the best naturalists. When the queen bees are dissected, there is always found in them an ovary, replete with a multitude of eggs, somewhat, for number, like the roe of a fish; but never anything similar to the ovary was ever found in any other sort of bees which compose the hive. If the common working bees bred equally with the queen, of what use can we suppose the queen to be, or why should they not be able to exist without one? It is notorious that if the queen die, unless replaced by another, the hive, or colony, is soon annihilated; the bees being sensible, by an uncommon instinct they possess, that without her their generation ceases. Wasps, hornets, humble-bees, are also bred from one mother, or queen; and the queens alone, among these last, survive the winter: if one of them is killed in April or May, a whole nest is thereby destroyed. There is seldom more than one queen in the hive at the same time, except during the

breeding season: if two swarms are purposely united, one queen is commonly sacrificed to the peace of the hive. But this is not always the consequence, as has generally been believed, when stocks accidentally unite themselves, or when they are kept in colonies, that is, in raised boxes. This assertion is proved by a circumstance that happened in an apiary.—There were three single straw hives of bees standing separately in an inclosed shed; they were blown down, when the weather, being frosty, preventing the bees from flying abroad, they all accidentally united themselves in one hive. The bees were examined, and there were found three queen bees living amicably together: the hive being enlarged, and room given, they continued to live together in friendship. This proceeding answered so well, that nearly double the profit was obtained that was expected from them had they continued separate. But had this hive not been enlarged, two of the queens would have been killed when the breeding season commenced.—It appears from this experiment, that it is only for want of room that the bees dispatch their supernumerary queens. It has also been observed, that two queens will lead the swarm from the hive, both at the same time; and they have been seen to settle together without the least commotion.

It is generally believed that bees provide themselves with an habitation before they leave their old hive; and that the reason they alight on the branches of trees is, from the queen being unable to fly far at one time. This is the opinion of most authors on the subject; but I think that cannot always be the case, as it often happens that the bees swarm within a few yards of the old hive: it seems to me that Providence has ordained, as they are evidently designed for the use of man, that he should be

their protector, and provide them with another residence—like increasing his fields and pastures for all others of his stock, as they become more numerous.

The queen bee is said never, or very seldom, to leave the hive, except when she leads a swarm. It is asserted, that naturalists have distinctly enumerated in the ovary of one queen 5,100 eggs, ready to be discharged; and it is supposed she lays nearly 200 a day, in the height of the season. She sometimes begins to lay in the latter end of January, but that depends on the forwardness of the season. It may be certainly known that she is beginning to drop her eggs when the bees are observed collecting from the early flowers. An experiment was tried, by tying the queen with a thread, so that she could wander but a few inches; when it was found there were eggs deposited in cells which she could not reach: this seemed decisive against there being only one mother bee. But it was afterwards seen, that the working bees carried the eggs from the queen, or mother bee, and deposited them in the different cells.

Drone, or male bee—This bee is very unlike either of the others: he is shorter than the queen, and of a thicker and more clumsy make; covered with a kind of down at the extremity; and much larger than the common working bee: when flying he makes a deeper sound. The drones are not armed with a sting. It is said there are about five or six hundred bred in one hive: they are not formed to collect honey or wax; living a short and easy life, on the honey collected by the working bees. They are seldom seen before the middle of May; and are driven out of the hive, or destroyed, before the month of August. A most singular circumstance attends the generation of bees:—they are observed to couple like other insects, and are found to

impregnate the ovary even for a future season. Bees begin to breed in January or February: the drones do not appear until May, and are never hatched before April. They are seldom seen earlier than eleven in the morning, or later than six in the evening.

Working bee.—The working bees are much less in size than the drone or queen: they are all armed with a sting. These are a kind of servants to the others before mentioned, as they collect all the wax and honey, build the combs, guard the hive, &c. and are very ready to sacrifice their lives for the preservation of their laws and property. They seem all to know their distinct work or occupation:—some collect the honey, others search flowers for wax; some never leave the hive, but are employed in various works within—building the combs, disburthening those that come home loaded, and guarding the house. It has been thought that bees are in a state of torpidity during the winter; but they certainly consume as much provision then as they do in summer, except in very severe weather: hence they are found to have a greater plenty of stores remaining after severe than open winters. If the queen bee die, these working bees labour no longer than to consume their store.

A swarm of bees, to be a good one, is said to comprise in number upwards of fifty thousand; and they have so strict a government and discipline, that if a single bee from another hive step in, he is suspected as a thief, and turned out or destroyed. Strange as it may appear, these insects have a language peculiar to themselves; in which I believe all animals, even reptiles and other insects, agree with them: they all unquestionably have a knowledge of the weather, for, by observation, it may be seen, they constantly provide against a change. This is particularly observable in bees, by their unloading the

labourers, feeding each other, &c: they give a sound as an alarm, if any danger approach, which is understood by the whole hive; and a day or two before they swarm, an unusual humming noise may be heard night and morning, which is supposed to be a sort of council held, to determine what number is to seek a new residence, and which of them: at this time the queen descends to the bottom of the hive, and collects her subjects by repeated calls, louder and more shrill than usual; after which, if the weather permit, the next day the swarm or east may be expected. But if leave be not given to the young queen, she is put to death.

Wax and combs.—These last are formed from the farina of flowers, which also serves for part of the bees' food. It is collected into little balls, which they carry in their legs. This crude wax, or farina, before it is used for building the combs, is digested in their bodies, which brings it to a consistency proper for the purpose. The farina is called bee-bread, and large quantities are laid up in the hive, where wax is not wanted, for future subsistence. New combs are of a whitish colour, before they are filled with the young brood or honey; but the crude wax is of various tints, according to the flowers whence it may be brought. The manner in which they form their cells is curious, the circumference of one making part of another, so that no room is lost: they are admirably thin; and at the entrance of each is a fillet of wax, so contrived as to strengthen it. The cells for the drones are larger than those for the working bees, differing also from those for the mother or queen bees to breed in; and they are able to distinguish the eggs for the different cells, so as to put every egg into its proper place at the time when layed.

There is another kind of wax which the bees collect,

called *propolis*, which is gathered from the rind and leaves of trees, shrubs, &c. It is harder than the comb wax, and of a browner colour. This is used to close up the crevices, and fasten the hive to whatever it stands upon.—The hive or box cannot be made too smooth, as that is the first consideration before the bees begin to work: it is therefore a good way to rub the hive over with wax before they are put in, as it saves them much labour.

Honey.—This is partly collected from flowers, as well as the wax, and partly composed of a sweet juice which; by the heat of the sun, exsudes from the veins of the leaf and bark of trees during the night: it has been very erroneously supposed to be a dew that descended; but it is only observed on some particular trees, the oak, sycamore, maple, &c. and only on some leaves of the same tree. Those trees, therefore, that produce the most honey ought to be propagated for the encouragement of an apiary: the hazle, bramble, and the hop plant, also afford this juice, but not so abundantly, nor does any other tree, as the oak. The best and finest flavoured honey is produced from mignonette. Bees do make honey from buck-wheat, heath, &c. but that is of a brown colour, and not well flavoured.

Some writers have said, that the bees do not prepare honey in the same manner as wax; but I think it is plain the process is exactly similar, as the sweet juice is not honey until they have collected it by suction: at the same time, all those men allow the mignonette to give the finest flavour; but why should it have that effect, if there were not a composition? and further, I have collected some of the drops of this juice, which, though sweet, was not honey. There are two sorts of honey in the comb; one being a thinner or more watery substance, on which the bees feed during the summer, and the cells

containing this kind are left open ; that for the winter's provision is of a firmer consistence, and is put into cells as it were corked up, and thus secured till the season for gathering honey is over.

SECTION II.

Situation, &c. proper for Bees.

THE hives should be placed in a situation facing the south, rather inclining to the west ; the morning sun not being so essential as the evening : full east or north should be avoided. When the bees return home late in the evening heavily loaded, being, after the day's labour, subject to a partial blindness, they are apt to miss the entrance of their habitation, and fall on the ground, and are sometimes unable to rise again ; therefore the best light is required at that time. About six inches is a proper distance from the ground, it being sufficient to secure them from vermin, and at that height they are likely, after falling, when weary, to attain the summit. If sand be spread before the place where the hives stand, it will prevent wet, which is highly detrimental, and therefore no water should be suffered to stand near them. There ought to be no weeds about the hives, as the bees are liable to get entangled in them, and they may harbour vermin.

The apiary should be well sheltered from the north and east winds : the hives ought by no means to stand on a stone, as some do, but on wood neatly planed.

Trees, shrubs, flowers, &c. proper in the neighbourhood of an apiary.—Horse-chesnut, sallows, oak, &c. have been mentioned : all kinds of fruit-trees are also proper ; likewise Spanish-broom, thyme, borage, crocus, snow-drop, aconite, ivy, turnips, rapes, red and white clover, beans, peas, and all sorts of grain.

SECTION III.

Swarming.

BEES generally swarm from the beginning of May to the middle of July. For this purpose it is necessary to have trees planted near the apiary, as the bees most commonly alight on a branch of some tree near the place: and there should be a good look-out kept during this time. After the hive has been very carefully cleared from all loose straws, and well rubbed with a coarse cloth, mix up some beer and sugar, and with a handful of baum apply the mixture to the hive. Some people use cream and sugar: it was my mother's practice to use sugar and water, rubbing the hive with fennel, and I never knew an instance of the swarm leaving the hive. I believe Mr. Wildman disapproves of the application of any thing. It has always been considered necessary to throw some old chamberlie on the bough where the swarm alighted, and was taken from; as it prevents them settling there, or going back, which they will otherwise sometimes do. Previously to hiving the bees, it is proper to have the hive made ready, with a plug to the hole at the top, reaching about nine inches down into the hive, and four sticks placed across, in contrary directions; the first stick in a direct line over the intended entrance, about four or five wreaths from the bottom; then a second across that, in the same seam of the hive, resting one on the other in the middle; and at an equal distance between the top and the first two bars put in two more, in an opposite direction to the former: these sticks will prevent the combs from falling down:—green sallow, with the peal slipped off, is best for the purpose, as it is very smooth, and has some sweet juice about it. Two persons are re-

quired to hive the swarm; the one to hold the hive, the other to shake the bough. It is usual with some people, to secure themselves from being stung, to put on two pair of stockings, a pair of gloves, a carter's frock, and to cover the face with some kind of thin cloth scarf, through which they can see. The bees being in the hive, a sheet or large linen cloth must be spread on the ground, and a stick laid on the cloth for the hive to rest on, to give the bees free entrance and egress: some boughs of a tree should then be placed over the hive, to keep it well shaded, for if the sun come very hot upon the hive, it will offend the bees, and they will perhaps rise again, and probably fly away. This done, in the evening, when the bees are all in the hive, remove the boughs, and lapping the cloth round the hive, carry it to the place where it is to stand.—By observing gentleness with bees, they may be removed without danger or difficulty.

It is a common method to wash the board on which they stand in the same manner as the hives: some people strew a little moist sugar on the stool, which I think a good way; others set a plate of honey on it, covered with paper pricked full of holes. It is also an almost general practice to make a sort of ringing: I always do so, as it cannot injure. I have adopted this proceeding for more than thirty years, during which time I never lost a swarm; and in villages, where there are more bees, it gives a sort of power or authority to challenge the swarm, when they happen to alight in another man's premises.

In very hot weather, at swarming-time, bees will hang out in clusters underneath the hive, which is sometimes occasioned partly by want of room, at others by an excess of heat; in either case, it is advisable to give them room, by raising the hive: some people consider it a certain rule

to judge when bees are going to swarm. The calls which are then heard are made by the queens only; and as they make different sounds, it may be known how many queens there are. The casts, in a general way, are the ninth day after the swarm, if the weather permit.

SECTION IV.

Construction of the Bee-house, Boxes, and Hives.

THE *bee-house* may be made of half-inch deal board, and of the following dimensions, viz. length, thirteen feet; light, in front, four feet from the bottom board, or that on which the boxes are placed; breadth fourteen inches; with four doors at the back part, to open from end to end, three feet and a half in height from the bottom board to the roof. An inch-deal board, twelve inches broad, neatly planed, must be put in the inside, reaching from one end of the house to the other, exactly even with the bottom board, to set the boxes on; twelve holes, four inches wide, and half an inch in height, being cut to correspond with the holes of the boxes; and against every hole there must be a small piece of board for the bees to light upon, made a half-circle, so that the bees cannot run from box to box, which is too common on the bee-stools, as having that convenience they are more liable to rob each other; while by these rests being half-rounds, and put on in a slanting manner, no wet can remain at the entrance; and if each of them be painted of a different colour, and the corresponding hole the same, the bees will readily know their own boxes, and alight upon them without mistake.

Boxes.—These may be made of well-seasoned inch-deal board, nine inches square, and eight in height in the inside, with a communication-board of about three inches; the entrance four inches wide, and half an inch

in height—this will prevent mice, snails, &c. from committing depredations.

Hives—Are made of straw. To preserve them, it has been my custom to cover the top with an earthen milk-vessel, turned upside down; which, while it keeps all wet from the hive, by adding weight, prevents the wind from blowing it over. Some people cover the hive with wheat-straw; but the wind is liable to take great hold of it, and throw the hive down: it at the same time harbours wood-lice, earwigs, &c.; while the earthen vessel, being readily moved, can easily be inspected. The bottom part of each hive should be surrounded, to the distance of about three inches, with some lime and hair; and there ought to be a grate at the mouth or entrance, made of a piece of thin board, with about four nicks in it, which prevents the intrusion of many depredators: but as soon as the bees begin to work the grate should be taken away.—I prefer the flat-topped hive, with a slider.

SECTION V.

Bees in Colonies.—Taking the Wax and Honey, without destroying them.

THE house should be furnished with strong and early swarms; not with late, or second, swarms, as they seldom do any good. Boxes being often too small even for a single good swarm, it is a judicious method, as soon as the bees are set in the house, to place an empty box under the one they are put in, as they will frequently fill two boxes with comb in a few weeks; and when that is perceived, immediately add a third, for the female bee naturally descends, and will begin to lay her eggs in the lower box: thus the upper box will shortly be free of the young brood, and entirely appropriated for honey and crude wax. When the third box is filled with combs, it

mostly happens that the upper box is full of honey, with few or none of the young brood; then, early in the morning, before sunrise, being prepared with a knife seven or eight inches long, the blade of which should be thin, cut through the combs that are joined to those in the second box, and gently lift off the top box with the honey, &c. immediately placing a board over the communication hole: the same day put another empty box under the other two remaining. In good honey years it mostly happens that two of the boxes may be thus taken away. The latter end of June is as soon as it can be expected that the first box will be fit to take off; and the second about the last week in August. But it seldom, if ever, happens that two boxes can be removed the first year; indeed it is rare that one box can be taken in that time: however, when the number of bees is increased, the second and third year sometimes two, or even three, boxes may be cut off, and sufficient provision be still left for the bees.

There will generally be a few bees in the box taken off; and the extricating them from the combs, honey, &c. is attended with some difficulty. To effect this, if the box be carried to a distance, turned bottom upwards, and rapped repeatedly on the sides with a stick, it will sometimes cause the bees to leave the box. Another way, if the former do not answer, is, to throw the box into a tub of water; which, when done quickly, will not injure the wax or honey, nor will it destroy the bees, as they may be recovered by being laid on a dry cloth in the sun, or before a fire. It may happen that the queen will be in the box removed; therefore great care should be taken to search for her, and, if found, to return her to the swarm. Some people carry the box into a dark room, except a small window for the bees to fly out at, and placing it bottom upwards, as far from the light as pos-

sible, rap with a stick as before;—for, as bees can only see in a clear light, they are sure not to return: but if the queen should be in the box, the bees will prove very obstinate, as they never willingly leave her; therefore strict search should be made for her.

The method of taking hives is so generally known, that it is scarcely necessary to be mentioned.—A hole is dug in the ground the size of the hive, in which are fixed two upright pieces of wood, about a foot long, each having a nick in the upper part; pieces of linen rag dipped in brimstone are put into the nicks and set on fire, when the hive is placed over the hole, and an old cloth wrapped round to confine the smoke, which suffocates the bees.

SECTION VI.

Separating the Honey from the Comb, and purifying the Wax.

To extract the honey, the boxes or hives should be removed into a close room, secure from bees, wasps, &c. The combs and honey being taken out of the boxes or hives, something must be laid across a large earthen vessel, on which a sieve is placed, to receive the combs; these being broken, the honey will drain out, and pass through the sieve. This is the most effectually performed in a warm place, where there is a charcoal fire, as there ought to be no smoke: the first honey, before the combs are squeezed, is the best. After all, there will still remain some of an inferior quality, which may be washed out, for the purpose of making mead, it being nearly as good as any for that use.

Wax-process.—The honey being all separated from the combs, they must be boiled in water, constantly stirring

them while over the fire. When properly boiled, the whole should be put into a strong canvas bag (a three-cornered one is the best); which, when full, with a rolling-pin, must be suspended over a tub of water, and pressed, turning the bag first on one side and then on the other, by which means the wax will be separated in a perfect manner. The wax should then be taken from the water and melted, carefully skimming it. When melted, it must be put into some vessel, with a little water on the bottom: earthenware is the most proper, but tin will answer. It is my practice, and is usual, to take all the combs that have not been bred in, which are whiter than the others, and to boil them in water for about ten minutes: they must be kept stirring, as before, while they are boiling; and when they are cold the wax will be found in a cake at the top. There will be some dross at the bottom of every cake, which should be pared off, melted over again, skimmed, and put into a small vessel containing a little water.

SECTION VII.

Ordering Bees in the Autumn and Spring.

ABOUT Michaelmas, when the honey-gathering season is over, all the hives and boxes should be lifted: single hives not weighing 20 lb, and boxes weighing 30 lb or a little more, are best taken, as they rarely pay for feeding; and those of less weight seldom survive the winter, or, if they do, scarcely ever to any purpose. I have reason to believe there are bad working bees as well as bad other things; and those small casts, from some cause, probably being bred at improper times, seem to me to be of a worse kind: I have put two of them into one hive, but I do not remember that I ever reaped

any advantage from the proceeding: though when a hive has lost its queen, it may be of service.

There are various methods of uniting swarms. It is sometimes effected by means of a puff-ball, which, when ripe, is put into a strong paper tied up very close, and dried in an oven, or by the fire, till it will burn freely; a piece about the size of a hen's egg is then cut off, and being fixed on a stick at the bottom of an inverted empty hive, is set on fire, and the hive containing the bees placed over it, when the bees will instantly drop into the empty hive: the hive in which the bees are is then covered with a coarse cloth that will admit the air, and suffered to remain until the next evening, when the cloth is drawn away. The bees must be confined for three or four days, putting a quill or two through the hive to give them air: after that time the door or entrance may be opened, when they will mostly settle.

SECTION VIII.

Removing Bees.

THE safest time to remove bees is about Christmas, or the beginning of January. Fresh swarms of the first year are the best; but they ought to weigh about 20 lb at the time they are moved: and care must be taken, in the spring season, that they have not had one working day, or they may prove insensible of the removal, and fly to their former situation.

SECTION IX.

Feeding Bees.

BEES should be fed as soon as the honey-gathering season is over, which is closed by the ivy. The best

food is coarse brown sugar moistened with new ale ; on which they feed cleaner than on any other substitute : some people dilute honey in warm water, which is put in a plate or dish, covered with paper pricked full of holes : —these should be placed on a flat-topped hive or box. If honey alone be given, it may be covered with short straws, for the bees to light upon. They will soon carry either of these articles to their own combs. About this time, it is a good way to brush the hives and the boards they stand upon, as there will be some embryo insects and reptiles about them. In this, like all other business, cleanliness is necessary to be observed.

For feeding bees, it is advisable, during the summer, to provide them with proper resources near their home. My reason for particularly remarking this, arose from the following circumstance :—Mr. Duncomb, then member for York, told me, he had a miller, who lived near him, that kept many bees ; and during the time of beans being in blossom, he observed his bees to be from home the whole day : he was at a loss to know where they were gone. Having noticed a bean field at some miles distance from him (I think twelve), where he had observed many bees, it struck him that his might be of the number ; to ascertain which he determined, as they came out of the hive in the morning, to dredge them with wheat flour : he did so, and then rode to the field, where he accordingly found his dredged bees. Thus, if bees at times fly to so great a distance, it would save them much labour to provide them food near their home.

I observe in an author on bees, a remark worth notice. —He planted a large quantity of mignonette before two hives, at a considerable distance from any other bees. Having plenty of this provision near them, very few ever left the garden ; and those that did, probably went

in search of water, to which bees have recourse in dry weather. In September, the same year, he took the honey, and found a greater produce, by upwards of one third, than from any two hives where the bees were obliged to fly abroad; and this equal in fragrance and colour to any imported from the warmer climates. From this experiment it seems, that a piece of land near an apiary sown with this plant, would pay as much, or more money than any other crop; as it does not appear clear to me that honey is principally obtained from trees; for if the bee only collected honey from what is termed the honey-dew, how was it that those bees had more honey than their neighbours? I know another similar instance, of my father's bees collecting a very unusual quantity of honey superior to any produce during thirty years' experience, in consequence of a neighbour within a quarter of a mile having a large field of rape-seed.

SECTION X.

Enemies to Bees.

BEES have many enemies—sparrows, swallows, robins, the willow-biter, ducks, mice (a single mouse will of herself destroy the whole of a hive in a little time); hornets, which prey on the bee; wasps, on the honey: moths are also their inveterate enemies, so much so, that there is no saving a hive if they get into it: earwigs and wood-lice are likewise great plunderers of the apiary. Bees are also great enemies to each other, by robbing one another of their winter's food; on which occasions serious battles are fought, but seldom with bees of the same apiary: these contests take place when they find they have not a sufficient supply for the winter;

thus bad seasons generally occasion them, and they scarcely ever happen in plentiful honey years. When these attacks are made, it is easily known by dead bees lying under the hive; and it is astonishing with what rancour the contest is continued when the robbers have once gained an entrance. The way to prevent these depredations, is to close the entry to the hive, so as to permit only one bee to pass in or out at a time, which enables the bees to defend themselves much better. The weak hives are always the assailants and robbers; therefore I would strongly recommend the taking of them, as they cause confusion, and are of little value.

CHAPTER XII.

SHEPHERD'S DOG.

THE sheep-dog is so essentially necessary and useful to the shepherd and the drover, that it merits a place in this treatise. Various kinds of dogs are made use of for shepherding, as almost any dog may be taught to serve this useful purpose; but there is one particular breed which seems naturally the best adapted, viz. a rough sort, with very long soft hair, and distinguished by being without tails. Their colour is black, or blue, with a white ring round the neck, a bald face, and the belly and feet white. These dogs, although they appear similar, as to colour and make, vary in size, and seem the one to suit the shepherd, the other the drover. The dog of the largest size stands as high as a sheep; thus, when his teeth are broken in a proper manner, he can take a sheep by the ear, and, from his weight and strength, hold it without injury: this the smaller sized dog could not do; but he seems nimbler, possessed of a more fiery spirit, and not so liable to tire; however, in folding pasture sheep, he appears to be too busy, and to chase the sheep more than is necessary: the former, therefore, is the most proper for the shepherd.

The county of Dorset lays claim to this breed of dogs; and they are certainly to be found more generally in that county than in any other; but they are most frequently seen in Smithfield, attending the London drovers. The hair of these dogs is a necessary protection against the severity of weather, as they have to lie by the fold side during many cold days while the shepherd is dressing the

flock. There is also a small sheep-dog, long in the body, and short in the leg, with strong hair upon him; some of this breed are red, some black, generally having white about the neck and face: they are to be found in Westmoreland and Cumberland. These dogs are so wonderfully sagacious, that it is well authenticated they know the brands of the sheep, and will select their master's sheep from others, on parts of the mountains inaccessible to man. For this service they are better formed than the breed before mentioned; as a large dog, on those rocky mountains, would be liable to fall down the precipices, not being so sure-footed as those smaller short-legged dogs.

In some parts of Lincolnshire there is a strong large dog, larger than either of those before described, somewhat like a sort which is termed the house-dog: some of these dogs are possessed of wonderful sagacity. The shepherd who superintended my flock at Skegness, and had the care of upwards of 4000 sheep during the summer, in above forty pastures, had one of this breed: the dog's name was Ball. About twelve o'clock in the day the shepherd, or one of his sons, would say, "Ball, it is time to go to shepherd;" on which the dog would set off, and regularly visit every pasture, to see if there were any sheep over-cast, a circumstance that, from their long wool and broad backs, frequently happens in hot weather. The dog would, in his round, on some days, have perhaps forty or upwards of sheep to help up, which he accomplished by putting his nose under the head, and raising the fore parts, until the sheep could rise.

In the county of Huntingdon a very good method is practised, of putting two posts at a proper distance one from the other, with a rail across, the height of a sheep, so that he may at pleasure rub his back; which is a

great means of preventing sheep being over-cast, as it arises from an itching on the back, and their attempting to roll to rub the part. When sheep get over-cast, it sometimes occasions almost immediate death; and where there are many crows and ravens, they will peck the eyes of the sheep out: but I have known a sheep lie over-cast forty-eight hours, without injury.

I saw another striking instance of sagacity in the sheep-dog.—A man had about sixty sheep bringing through Doncaster, he walking before them, and they regularly followed him. Seeing this, the people thought the man dealt in magic; but he had a dog, which the sheep knew was behind: the dog was not observed, as he went by the side of the walls, along the flag pavement, among the people; and as the sheep proceeded slowly, he crept into the passages and entries, and was not seen to notice either sheep or shepherd. I could mention many similar circumstances shewing the great use of these dogs, when well broke and properly managed.

Some men have an utter objection to the shepherd's dog; my father had; he contended that those dogs chased the sheep unnecessarily about, and heated them, thereby causing them to take the scab. From his reasoning, I imbibed the same prejudice; but when I was in Ireland, where the pastures were large, and the sheep wild, I began to see they would be useful. When I returned to England, I bought a large Lincolnshire dog, and two whelps of the rough Dorset kind; after these dogs had been made use of for a short time, instead of the sheep being wilder, they became perfectly submissive to the dogs: unless the dogs were there, they would not come near the fold; but the instant the dogs appeared, they regularly walked in with all the composure imaginable. We had 1500 sheep during the summer; and one shepherd, attended by the large dog, managed them with

seemingly little to do: in the time of harvest he worked the greatest part of the day; and while moving the turnip fold, the dog kept the sheep back, so that the shepherd could shift the hurdles alone. Now this man would not have been able to shepherd our flock without the assistance of one or two boys, and then not with half the ease, or so well: I am, therefore, clearly of opinion, that, on a large farm, where the pastures are spacious, a good dog is at least equal to one man.

The profit arising to the shepherd from these dogs is also great.—The dog is generally shorn at the time of sheep shearing, and of the hair a hat is commonly made: and the breed is now so sought after, that the whelps are frequently sold for a guinea, or upwards, each.

CHAPTER XIII.

FISH.

SECTION I.

Fish proper for Ponds.

FOR this purpose, there are but four kinds deserving attention, viz. TENCH, CARP, EELS, and PIKE: of these the *tench* is the most worth breeding and feeding, it being the firmest and of the best flavour, and not requiring other small fish for its support, but will fatten in water alone that is suitable, probably subsisting on the animalcules with which water is known to abound. It has been supposed to feed on mud; but I have a strong proof that such is not the fact.—When I lived at Asgarby, I had a pond in which this fish succeeded admirably well, the bottom of which was a white sand: the water arose from two or three small springs, causing a very slow current to continually run through it. The tench in this pond grew fast, fattened well, and were remarkable for fine flavour; but they did not breed, although the female fish were found to be as full of spawn as those in other waters and ponds where young were produced: I then thought that the nature of the water prevented the spawn being prolific. The stock of the pond were purchased of a fisherman who caught them in the east fen: an accurate account was kept of the male and female fish, and of their size, as the price was according to their length, consequently their increase was known. A full-grown tench, costing at that time 9*d.*, would be from nine to twelve months fattening; one eight inches long, costing

6d., would be from fifteen to eighteen months acquiring its full growth and fatness; and one of six inches, costing 4d., required two years and a half or even three years to attain perfection. The size of these fish, when full-grown, was about 2 or 2½ lb; they paid about one shilling each for keeping every year. In this pond were also found eels of the silver kind, very fat rich fish, and of delicious flavour. But eels feed on worms; and they are to be seen in meadows, out of the water, in search of food. Some people suppose that tench likewise eat worms; however, as they do not leave the water, there must have been but a small portion for the number in the pond. The appearance of eels in this pond, none being put in, seemed at first incomprehensible.

The tench not breeding, I supposed it might arise from want of grass, or some kind of shelter in the water: and there being a hollow place by the side of this pond, where there had formerly been another, in which were some sallows, flags, &c. and as a communication could be formed between the two, I had a sort of ditch made round the hollow, to form a sort of island in the middle, that the tench might spawn among the grass and refuse stuff. In digging this dike or trench, there was one part, where a small stream had overflowed during the winter, and in rainy seasons in the summer, which was a sort of blue moist clay; as I was looking at the men throwing it up, I observed something very small to stir quickly, and on examining it, found it to be an eel not larger than a darning-needle. Thus, it appears to me that the parent eels must have worked their way up this small stream from a considerable distance, as it was not known that there were any eels nearer than four miles from the place. All those in the pond probably also had emigrated from at least the same distance, as we

never found a small eel in the pond; and several times, after we thought they were all taken, the same sized eels as before (of about 1lb in weight) again appeared: the eels in the pond certainly did not breed, nor did the tench breed in the new-made pond. However, the production of eels seems to be a mystery to all naturalists. I know a person in London, well versed in natural history, who is of opinion that they are bred from a fly; but this I cannot think correct, as they do not change to flies: this naturalist has formed his idea from the circumstance, that if wheat flour and water be boiled to the consistence of paste, and let stand for some time during hot weather, there will be found in it reptiles similar in appearance to the eel. It is well known that fish of some kinds go many miles to spawn: in America, for the space of about fourteen days, the river Potomac is so full of herrings, that the fishermen continue drawing the whole of the day, from morning till night, except at the time of tide, and they frequently take as many as a hundred and fifty thousand at one draught: there are no herrings discovered in this river at any other period, therefore the fry must return to the sea when very young.—Were those herrings to spawn lower down in the river, probably the spawn would not be productive. Those tench of which I have spoken were moved to Doncaster, a distance of eighty miles, in dry wheat straw; and when there, were kept in a trough of water for about seven days: they were then put into a pond, where they bred in great numbers, and increased in size very well, but were not fat and fine as at Asgarby, never acquiring that beautiful colour, having a sort of dull dead appearance, nor did they eat like the same fish:—all fish, of every description, to be in perfection, should shine, or glitter, &c.

The Reverend W. B. Daniel, in his highly interesting work entitled "*RURAL SPORTS*," says, tench delight in

still waters; their haunts in rivers are chiefly among weeds, and in places well shaded with bushes or rushes, but they thrive best in standing waters, where they lie under weeds, near sluices, and at pond-heads: they are much more numerous in pools and pits than in rivers, although those taken in the latter are far preferable: they begin to spawn in June, and may be seen spawning in some waters until September; they are best in season from that period till the end of May. Tench do not exceed 4 or 5 lb in weight; the most general weight is about 3 lb: worth 2s. a pound in London.

Carp.—Some people are of opinion that there are many different sorts of this fish;—some growing to a great size, others spread and look thick, and some are sweeter meat: however, I have reason to believe these varieties often arise from proper or improper waters, similar to the effect of climate on land animals. The certainty or uncertainty of fish breeding in particular ponds is scarcely to be known till tried; the most likely thing to promote breeding is, the ponds having rushes and refuse weeds in them. When I first went to Doncaster, I found in a pond of standing water, which had not been noticed to me as a fish-pond, a prodigious number of small carp; many very small, not more than three inches long; others smaller; and none above six or seven inches in length. I took several bushels out, and put them into another larger pond to fatten, leaving as many in this pond as I thought the water would support, expecting that they would continue to breed. The year following I drew this pond again; when, to my great surprise, I found the number had greatly diminished, while those remaining had not increased in size. This pond being entirely detached, I was at some pains to discover the cause; when there being many geese and ducks kept, which frequented the pond, they were seen to devour

the carp three or four inches long. From this circumstance, I have my doubts whether the reason my tench at Asgarby did not breed might not arise from the same cause, as I there kept many ducks and geese, which probably ate the spawn.

There was something extraordinary in regard to the carp I found in this pond;—no person about the place had the least idea at what period they were put in, and it therefore seemed they had been there many years, which made it appear very strange that they were no larger. I know another similar instance in tench:—a gentleman had a pond full of small tench, about three inches long, all nearly the same size, of which he gave me some hundreds to put in a new pond; and after keeping them two years, they did not appear to have increased either in length or bulk. Thus, although naturalists do not seem to account for these small sorts of fish, I have my doubts whether they are not distinct species. My reason for mentioning this is, to caution persons who wish to stock ponds, to be careful in selecting those of the proper large kind.

The haunts of carp during the winter months are in the broadest and most quiet waters (meaning rivers with soft mud bottoms); during the summer they lie in deep holes, near some *scour*, under roots of trees, hollow banks, and among or near beds of weeds or flags until they begin to rot. In ponds they cannot with propriety be said to have any haunts; but it is to be noticed, they love rich marl or clayey soil, where they can be well shaded with trees. They never thrive in cold hungry water. The frog is a great enemy to this fish, destroying the spawn, &c. It is said there are 4,386 bones in the gills of a carp. According to the "*Elements of Natural History*," a fish of 5 lb weight will produce 237,000, and one of 9 lb 621,000 ova. Carp certainly

spawn several times a year, as the male and female are seldom caught without having milt and spawn; but their first and chief time is in May: and they are in the highest perfection in April. They breed most abundantly in ponds: in running waters they do not afford so great an increase; but those caught in the latter are very superior in flavour. Carp are very prolific; the roe has been known to exceed the weight of all the other part of the fish. They are very long-lived: one is recorded that was known to be a hundred years old. A garden in Emanuel college, Cambridge, contained a carp that was known to have been there seventy years. Some of them grow to a very large size: they are sometimes caught in the Lago de Como, in Italy, weighing 200 lb; and in the Dneister five feet in length. Sir John Hawkins was told by Mrs. Garrick, that she had seen in her own country (Italy) the head of a carp served up at table sufficient to fill a large dish. Mr. Ladbroke, from his park at Gatton, presented Lord Egremont with a brace that weighed 35 lb, as a specimen to ascertain whether the Surrey could not vie with the Sussex carp. In 1793, at the fishing of the large piece of water at Stour-head, where a thousand brace of carp were taken, the largest was upwards of thirty inches long, twenty-two broad, and weighed 18 lb. Two carp, a male and a female, were put into a small pond in Sussex, which was emptied every year, and the young ones taken out; which, being put in other waters, in sixteen years came to the weight of from 16 to 32 lb each.

Eels—Vary much in their colour, from a sooty hue to light olive green; and those which are termed silver eels have white bellies, and are throughout of a remarkable clearness. There is another variety of this fish in the Thames, known in London by the name of grigs, and about Oxford by that of grigs or gluts. These are

scarcely ever seen near Oxford in the winter, but appear in the spring: they have a bigger head and blunter nose, a thicker skin, and are less fat, than the common sort; they are in less estimation, and seldom exceed 3 or 4 lb weight. The eels taken in the Serpentine river in Hyde-park are made in a particular manner about the head, which is large; and they are under-jawed, like the bull-dog. The black eels have a large head, a black back, and yellow belly; the flesh is reckoned unwholesome, especially when they are taken out of the mud, in standing waters. The common eel will grow to a large size, sometimes to weigh 20 lb; but that is extremely rare. In 1799 one was taken out of the Kennet, near Newberry, which weighed 15 lb. Walton mentions one caught near Peterborough, which was a yard and a quarter in length. Eels are extremely voracious, and highly destructive to the spawn and small fry of fish. Sir John Hawkins has spoken feelingly of their depredations not being confined to the young of fish only, for his brood of ducklings were all secured under water by the large eels, with which the canal abounded.

The haunts of eels are among weeds, under roots, stumps of trees, in holes and clefts of rocks or clay bottom, in mud, under stones, about bridges, flood-gates, and mills.

I am unable to account for the production of eels: on this subject the following opinions are given.—“The eel,” says Mr. Pennant, “is singular in several matters relating to its natural history, and in some respects borders on the reptile tribe. The eel is known to quit its element, and during the night to wander along the meadows, not merely for change of habitation, but also for the sake of prey, feeding on snails in its passage: during the winter it beds itself in mud, and continues torpid, like the serpent kind: is very impatient of cold,

and will eagerly seek shelter in a wisp of straw flung into a pond in severe weather, which at times has been practised as a method of taking them. Albertus goes so far as to say, he has known eels, for warmth, betake themselves to a hay-stack; yet even there the excess of cold has destroyed them. The ancients adopted a most wild opinion about the generation of those fish, believing them to be either created from mud, or that the scrapings of their bodies, which they left on the stones, were animated and became young eels: some moderns gave in to those opinions, and others equally extravagant; one in particular gives instructions for producing them by art:---'Cut up two turfs covered with may-dew, and lay one upon the other, the grass side upwards, and thus expose them to the heat of the sun; in a few hours there will spring from them an infinite quantity of eels;' not supposing or imagining the possibility of waters being supplied with fish by the conveyance of spawn by aquatic birds of prey, in a similar manner as vegetation is spread by many land birds. As to their immediate generation, it has been amply proved to be effected by the ordinary course of nature, and that they are viviparous: many persons have convinced themselves of the fact, by opening and taking out of the eel a small, soft, whitish substance, curiously knotted together; upon being put into water, this has separated, and the young eels were perfect, and, though not bigger than a small thread, have swum about. This discovery always took place in the summer, or beginning of autumn; and has been adduced as a confirmation of their going down to salt water to spawn. Those that remain in rivers, or that have been carried into rivulets and ditches, of which some are to be found at all times, produce their young in the same way. Natural historians maintain, that all fishes having no scales bring forth their young alive;

but this seems a mistake: the minnow and loach are mentioned as instances that spawn; but they are erroneously said to have no scales; and probably the observation may not be better applied to sca-fish whose scales are very minute."

A very accurate and ingenious observer has thus mentioned the migration, &c. of eels.—"There is," says this gentleman, "one other fish common in this country that is migratory, when in a situation to admit of it; this is, the eel. Eels can live and breed in stagnated ponds from which there is no outlet, as carp and tench, and several other fishes, do; but whether they ever there attain the same perfection as under other circumstances, may be doubtful. In what place the eel deposits young in preference to others, when at perfect freedom, or whether the young fry makes a progression towards the sea, as salmon does, at a certain period of its growth, I cannot tell. But, in one particular case, I know that it has been observed by others, that in the month of June yearly immense numbers of young eels make a progress from the lower part of the river towards the higher, with a quickness and unremitted assiduity that are surprising. This phenomenon was remarked in the river Dee, Aberdeenshire. The eels are a fish that (unlike the trout) dislike running streams, and therefore avoid that part of the river where the current is strong. It had probably been this circumstance that induced them, in the rapid Dee, to direct their course only along the edges of the river, close to the banks. A line followed the windings of the river, being often deflected by stones and other interruptions, without any breach of its continuity. This line having frequently caught my eye, my hand was put into the water to touch the line, with a view to examine what it was; the line became discontinued when my hand approached, but it united again as my hand was with-

drawn. This induced a nearer examination; and I then perceived, with astonishment, that this line was formed by a series of small eels moving forwards with great celerity. These eels did not exceed half an inch in length, but were in all respects perfectly formed like the common eel. The line might perhaps, on an average, consist of from twenty to thirty in breadth, and the line uniform; the individuals being in different degrees of forwardness, and close to each other. The progress with which they advanced was not less than four miles an hour; this continued for eight days and nights together, and there was no diminution of it when I left the place. There was a similar line on the opposite side of the river. The water in which they floated, at the place when I observed them, was in general about two or three inches deep. From the above statement, it may safely be computed, that the number which must have passed amounted to many myriads. What becomes of such multitudes of fishes we may conjecture, but never perhaps shall be able to ascertain. The above observations," continues this gentleman, "are respecting the spontaneous movements of eels upwards in the rivers: those that follow indicate their similar progress downwards at one season of the year. In Scotland, in the neighbourhood of Linlithgow, is a considerable lake, in which great quantities of eels are caught during many of the summer months; but the principal fishing is in the month of October, when it is found that eels, directed by natural instinct, discover an irresistible propensity to issue from the loch by the passage through which the water flows from it to the sea."

Pike—Love still waters, unfrequented, and shady, with a sand, clay, or chalk bottom (arriving at a larger size in pools than rivers); and from May till the begin-

ning of October they usually place themselves among or near flags, bulrushes, and water-docks, and particularly under the ranunculus-aquaticus when in flower, which floats on the surface. They will sometimes be found in the termination of sharp currents from March till the end of May: they resort to the back waters, that have a direct communication with the main stream. As winter approaches, they retire into the deeps, under clay banks, bushes impending over the water, stumps and roots of trees, piles of bridges, and flood-gates. They spawn in March and April, according to the coldness or warmth of the weather, quitting the rivers for the creeks and ditches communicating with them; and drop their ova in the grass and weeds in ponds, choosing those upon the shallows for depositing it. Ducks and other wild fowl eagerly devour the spawn, and by them it is transported to other waters. The appearance of the pike in ponds where none were ever put, has been deemed as extraordinary as its asserted longevity; it is, however, easily accounted for, upon the well-known principle of the generation of fishes: if a heron, for instance, devour their ova, and afterwards eject them while feeding in one of those ponds, it is highly probable that they may proceed from this original, in the same way as the seeds of plants are known to be disseminated. This idea is perhaps corroborated by the following circumstance.—A new pond was made for the use of cattle, in the middle of a pasture at Aby Grange, on the farm my father occupied, in which, though it had no communication with any other water, pike were found. These I then thought were brought by the heron alive, but more probably in spawn, as adjoining the farm were many woods, in which were a very great number of herons: they build their nests somewhat si-

milar to the rooks, many near to each other. At the breeding season, my father's servants made a practice of climbing the trees, to take their eggs or young, and at times there would be a fine large eel found in the nest. On this farm we had many ponds of standing water, without any current either to or from them of any consequence, merely common grips and small ditches by the side of quick fences, in which was little water, as there was not a spring on the farm. The land being clay, these ponds formed a kind of reservoir, and in dry summers would become nearly dry, affording an opportunity of clearing out the mud, which was done about once in seven years. When the ponds were emptied, a small number of pike was generally found in them; sometimes only one, and seldom more than five, weighing from 1 to 2, or by chance 3 lb: many eels, of a moderate size, were also found in them. Now, as these ponds were perfectly freed from fish at the time the mud was taken out, it seems certain the heron must very frequently have conveyed the ova into them; and in all probability afterwards preyed on the young pike, causing the number to be so small: as to the want of size, that might be occasioned by a deficiency of food, as eels were the only other fish found in the ponds; but there were thousands of tadpoles.

Sir Cecil Wray's pike, caught in June, 1799, at the draining of the lake at his seat at Summer Castle in Lincolnshire, weighed 47 lb gross weight, and 36 lb of eatable meat, after being cleaned. It was 48½ inches long, and 26 inches in circumference. This fish must have got into the lake when very small, and had acquired this enormous size in twenty-two years; for at that time the lake was laid dry. Sir Cecil computes that he consumed three fish per diem, progressively larger as his own size increased, and that he at least destroyed

24,000; all of which, in the latter years of his growth, must have been valuable fish; so that the cost of his support exceeded by some hundred times his own value. A river pike grows quickly until he arrives at twenty-four inches; he then ceases to extend so rapidly in length (for in good water, with plenty of feed, a pike spawned in March will by the March following be grown from sixteen to eighteen inches), and proportionably thickens; afterwards he will be much longer arriving at his full bigness (which is about forty-six inches), from the length of thirty, than he was in acquiring the first thirty inches.

Bowlker, in his "Art of Angling," remarks, that his father caught a pike that was an ell long, and weighed 34 lb, which he gave to Lord Cholmondely. By his lordship it was put into a canal in the garden, wherein were numbers of fish of various sorts. Twelve months after the water was drawn off, when it was discovered that the pike had devoured all the fish excepting a single carp, which weighed between 9 and 10 lb, and even this had been bitten in several places. The pike was again put into the canal, and abundance of fish for him to feed on. All these he devoured in less than one year; and he was observed, by the gardener and workmen, to draw ducks and other water-fowl under water: crows, and other birds, were shot for him, and thrown in, which he seized in the presence of the servants. From this time, his lordship ordered him to be supplied with the entrails of poultry, and also those of calves and sheep; but being afterwards neglected, he died as it was supposed for want of food. The above is a positive proof of the cost of maintaining one of those over-grown fish.

Sir Joseph Banks mentions a pike, caught in Lincolnshire, October, 1794, which weighed 31 lb, and was, from the back to the tail, 3 feet 10 inches long; gauged by a pin thrust through, he was 4½ inches thick at the

shoulder. The pond had only been stocked twelve years, with small pike, none exceeding 1 lb in weight; notwithstanding which, several of 18 and 20 lb weight were taken out during the last three years. The growth of the largest fish was $2\frac{1}{2}$ lb annually, for the average of twelve years, in which time he had increased from 1 to 31 lb. The pond from which this fish was taken had a communication with a small river well stocked with fish, so that its supply of food had been abundant; and, when dressed, the flesh was particularly juicy and tender.

The following account of a prodigiously large pike is given in "Walton's Complete Angler," 6th edit. 1797:—"In January, 1765, at Lilleshall lime-works, near Newport, a pool of water, about nine yards deep, that had not been fished in the memory of man, was left open by a level that was brought up to draw the works; when an enormous pike was found, which was drawn out, amidst hundreds of spectators, by a rope fastened round the head and gills: he weighed about 170 lb, and is considered the largest ever seen in this country." By way of addendum it is asserted, that, "some time before, the clerk of the parish, who was a dextrous troller, had his bait taken by this leviathan, and himself, by a sudden jerk, pulled into the water, where, but from his expertness in swimming, he might have become a delicious morsel for the voracious animal."

The longevity of pike is truly remarkable, if credit may be given to the assertions respecting it. Rzaczynski speaks of one ninety years old; but Gesner's pike, that was taken near Hailbrun, in Swabia, in 1497, with a brazen ring, denoting, that 'from the hands of the governor of the universe, Frederick the Second, he was put into that lake in 1230,' places the former almost in a state of infancy.

SECTION II.

River Fish.

Perch.—THE perch is a slow grower, and seldom with us arrives to any great size. The largest ever heard of in this country was taken in the Serpentine river, in Hyde-park, which weighed 9 lb; but that weight is very extraordinary. One of 8 lb was caught in Dagenham-breach by Mr. Carter; and in "The Angler's Sure Guide" is noticed the portrait of one, taken near Oxford, twenty-nine inches long, and deep in proportion. Where the perch are considered to run large, their general length is from ten to sixteen inches. However, a circumstance which occurred in Middlesex, and is mentioned by Sir Joseph Banks, proves that, in some waters, and where there is plenty of small fry, the perch will rapidly increase in weight.—In autumn, 1797, a pond was emptied, wherein various fish had been kept for years, and amongst others perch, none of which had attained the weight of $\frac{1}{2}$ lb: that all the fish and spawn might be destroyed, the pond was left dry for more than a week. In the ensuing spring, gold-fish were put into it, and observed to breed very fast. In July, 1800, a perch was seen in the pond, seeming not much to exceed $\frac{1}{2}$ lb in weight. In July, 1801, the perch was again seen, and noticed to be much grown; but as the pond was full of water-plants intended for ornament, it was not disturbed in order to take the perch, which however was caught in 1802, when it weighed 1 lb 10 oz.—As it is not probable that this fish could be hatched from the spawn that might be accidentally left before the spring of 1798, it was four years old when taken: at two years and a quarter old (in July, 1800), it was little more than a quarter of a pound; it therefore increased after that

period twenty-two ounces in twenty months, or more than one ounce a month, summer and winter, and acquired this size from the abundance of fry of the gold-fish.

Perch are tenacious of life; and it has been said, they have survived a journey of sixty miles packed in dry straw. They are found as well in clear, swift rivers, with pebbly, gravelly bottoms, as in those of sandy and clay soils: they love water moderately deep, and frequent holes by the sides of, or near to, gentle streams, where there is an eddy; the hollows under banks, among weeds and roots of trees, piles of bridges, or in ditches and the back streams that have communication with the larger river. They thrive very fast in ponds which are fed by a brook or rivulet; their haunts are chiefly in deep holes, between weeds or stumps of trees. Perch spawn, according to the opinion of many persons, in February or March; certainly some of them spawn in May. In the "Elements of Natural History" it is said, "in April or May, while rubbing itself on some sharp body to deposit its ova, sometimes to the amount of 280,000 (this number is vastly beyond the calculations in Mr. Harmer's Tables, but this fish weighed 2 $\frac{3}{4}$ lb, and the spawn alone 7 oz., nearly as much as the whole fish described by Mr. H.); it lives mostly upon the smaller fishes, and in its turn is preyed upon by the pike, but more by the eel, and likewise by ducks."

Trout.—There are several sorts of trout, differing in size (for in many of the smaller streams there are trouts that always continue small, but are very great breeders), shape, and hue; but the flesh of the best is rather yellow when dressed: the female fish has a smaller head and deeper body than the male, and is of superior flavour. In fact, the colours of the trout and its spots vary much in different waters and at distant seasons, yet each may

be reduced to one species. It is said that trouts, in a good pond, will grow much faster than in some rivers; and from the accurate observation of a gentleman, who kept them in ponds to ascertain their progress and the duration of their lives, it is asserted that at four or five years they are at their full growth, which in some is thirty inches, in many considerably less; that for three years they continue with little alteration in their size or goodness; two years afterwards the head seems to be enlarged, and the body wasted, and in the winter after that change they die. According to this computation, nine or ten years are the term of their existence; probably that may be prolonged, and their bulk increased, when they have liberty to go into the tide-way and salt-water. Mr. Toomer, of Newberry, in Berkshire, used to keep trouts in stews, and fed them to a very great size in a short time.

In some rivers, trouts begin to spawn in October, but November is their chief month: at the end of September they quit the deep water to which they had retired during the latter part of the hot weather, and make great efforts to gain the source of the currents (they also swim up brooks, where they are too often destroyed by poachers), seeking out proper places for spawning;—these are always upon a gravelly bottom, or where gravel and sand are mixed among stones; towards the end and sides of a stream; and in lakes, &c. where the bottoms are gravel, among weeds: in such places they make themselves beds and deposit their ova (they are very prolific, and the spawn is most eagerly sought for and devoured by the grayling); at which period they turn black about the head and body, and become soft and unwholesome; in fact, they are never good when big with roe, which is contrary to the nature of most other fish. After spawning, they become feeble, their

bodies waste, and those beautiful spots which before adorned them are imperceptible; their heads appear swelled, and their eyes dull (Mr. Pennant says, the under-jaw is subject, at certain times, to the same curvature as that of the salmon). In this state they seek still waters, and continue there sick, it is supposed, all the winter; a prey also to vermin which breed upon and keep them poor. Thus does the "monarch of the brook" pass nearly one fourth of his existence, until roused from his torpor by the return of spring. It is to be remembered, that in all trout rivers there are some barren female fish, which continue good all the winter.

Flounder.—This fish inhabits every part of the British seas; and is found, although at great distances, in all the rivers that communicate with it. Numbers of flounders, that are not taken, losing themselves, continue breeding, with vast fecundity, in the rivers; and those grow to be the largest and best flavoured: they will likewise live in ponds, and are a profitable fish to stock them with, as they soon get fat, will live many hours out of their element, and consequently may be easily and safely moved; but they will not breed or live above seven or eight years, when confined in standing water. Flounders spawn in May and June, and are in season the rest of the year.

Roach.—This fish inhabits many of the deep waters and still rivers; delights in gravelly, sandy, or a kind of slimy marl, under a deep, gentle, running stream. In the summer roach often frequent shallows near the tails of fords, lie under banks among weeds (especially when the water is thick), under the shade of boughs; and at or opposite the mouth of a rivulet or brook that empties itself into a larger river, where the best roach are generally met with: as winter approaches, their haunt is

changed, to clear, deep, still waters. The roach spawns at the latter end of May, producing, it is said, upwards of 54,000 ova: it feeds on aquatic plants and worms, and is preyed upon by the larger fishes and water-fowl. For three weeks after spawning they are unwholesome; they recover themselves in July, and become good about Michaelmas, but are in their prime in February or March.

This fish is in little esteem, from the quantity of bones: the roe, which is green, boils red. Roach are never good in ponds, therefore not worth breeding, except in a pike pond, as food for the pike. There are two kinds:—the one has a small head, a small, round, leather mouth, with teeth in the throat, and large eyes, having a circle of gold colour and red iris: the other, which has white eyes and fins, and a very forked tail, is supposed to be bred from the bream and roach; it is found in standing waters, but is good for nothing.

For many extracts inserted in the preceding and subsequent pages on fish I am indebted to the Rev. W. B. Daniel, who very kindly lent me his work entitled "*RURAL SPORTS*," which contains much interesting matter on the subject in general; I therefore highly recommend a perusal of it to persons who wish to obtain further information, particularly as it respects fish considered as an object of diversion.—The quotations being incorporated with my own remarks, it would have been both tedious and troublesome to have noted the pages whence the different passages were taken; I therefore intend this as a general acknowledgment.

SECTION III.

Fish-ponds, of a small size, in Fields and Pastures.

THE form of the pond ought to be like a scow, which is a kind of boat, used as a lighter to deliver goods in rivers where the water is shallow: it is deep in the middle, and shallow at both ends, and of equal width from head to stern. This kind of pond is intended for a double purpose;—being made in some low hollow part of the fence that divides different pastures, so that the fence-ditch may supply the pond with water, the cattle in each pasture can also drink. Ponds made in this form will give the fish an opportunity of being in deep or shallow water at pleasure; as it may be seen that fish delight much in coming to the mouth of a pond, and into shallow places, at times, to have the benefit of the sun: and, as they likewise delight in shade, there ought to be on both sides trees planted; and rushes at the edges, which afford them a cover, serve also as a retreat from all their enemies, and probably render the fish healthier, and cause them to be more prolific. Fish are easily taken in ponds formed in this manner; and they ought to be made sufficiently large, that there may never be a want of water;—but water is as necessary for the use of the cattle as for the fish, therefore the expense will not be lost money. If a small running stream can be obtained, it renders the fish much better flavoured. But, as it does not appear that clear water, free from weeds, is preferred by fish to deposit their spawn; there ought to be outlets, or a kind of lake, on one or both sides, containing deep water, inclosing a sort of island, to grow flags and rushes, and if there are osiers, willows, sallows, &c. the better; but the eminence, or island, should be in part, or all at times, covered with water. The com-

munication with the large pond ought to be a small narrow cut, so that when the large pond is intended to be fished, the fish may be beat out of the part intended to breed in, viz. the lakes or breeding ponds. I have every reason to believe, that the young eels found in the swamp by the side of my large fish-pond at Asgarby were the produce of eels which had left the pond, and spawned among the flags, roots, &c. The most ancient as well as modern authors, on the subject of breeding fish, have observed that fish do not naturally choose to spawn where they continually lie and feed, but many go to very great distances.

Ponds made and managed as above described, and properly stocked, would not only be an accommodation, but a profit; and nothing but method is required to effect it. Tench and carp, which do not feed on other fish, may be kept to the most advantage; and, if for sale, may be conveyed many miles alive: the fishmongers are always ready to purchase them, as they constantly keep a stock, generally in cellars, in tubs or stews. Thus every part of the farm may be applied to some profitable use; and this would be a very great addition to the comforts of many counties that now have no supply of fish.

The width of the pond should be from twenty to thirty feet; length from sixty to eighty; depth, in the middle, eight feet: the pool ought to be made round, and the larger the better; the neck, or entrance, about four feet wide, and six feet in length: all other parts to be formed according to the size of the pond, and the kind of fish. The environs of ponds so furnished would also form very good cover for game, such as woodcocks, snipes, and even hares and pheasants: they might be planted with both ornamental and profitable trees, which would in the hot summer months keep the water cool,

and during severe weather in winter shade it from frost. It seems, from the best information, that carp, tench, and eels, all thrive the best on rich clays, loams, &c.; but as eels take part of their food in the meadows, devouring snails, worms, &c. they would have the advantage, in those ponds, of being at liberty to disperse themselves in the pastures: and if the white-thorn were planted, with the small sloe or bullace, the fruit, falling into the ponds, would be food for several kinds of fish. Some authors recommend the dung of cattle; which I have reason to think fish may be very fond of, as I know that soft-mouthed fish are remarkably assiduous where privy-seats project over a running stream: and the leaves of trees may also furnish sustenance, or, at least, add to the comfort of the fish.

My intention, in this work, being to apply all the land a man occupies to profit, the following example will shew that even where gravel has been taken for roads, clay for bricks, or ponds are obliged to be made for the use of cattle; as also swamps and hollows, that cannot be drained without more expense than the space of land would be worth; the places may readily be applied to more advantage than many, or in some instances any, other parts of the farm, cultivated at a low expense.—Mr. Daniel turned the current of a brook into a very large gravel-pit (after furnishing it with a sluice and other conveniences for the water): the pit had not been worked for many years, and was mostly covered with sward at the bottom. He put into it about thirty brace of carp, of which none weighed less than 8 lb, and some as much as 11 lb each carp. The next year the produce was astonishing: he caught, at one throw, with a minnow casting-net, upon the shallow at the mouth of the pond, 1,025 carp from one to two inches long; a considerable number of these were given to a gentleman that lived at

Little Waltham hall, who had some very good pieces of water, in one of which, containing about two acres, they were put: five years afterwards the pond was fished, when many of the same carp weighed upwards of 4 lb each:—an instance in favour of stocking with large or middle-sized carp.

SECTION IV.

Manner of making and raising Pond-heads.

It is obvious that the most proper places for forming a dam are across a swamp or valley, where water can be obtained, or where water generally runs; as the natural surface is much better for almost every species of fish suitable for ponds, stews, &c. than the under-stratum or ramel. The only expense or difficulty is, in making the bank or dam. As there is in almost all cases a fall, it generally requires a head both high and strong; and if not properly made at first, much inconvenience may arise; consequently the first expense, although it be great, is the cheapest in the end. Let the height of the head or bank be what it may, for every foot rise there ought to be from one foot to one foot and a half slope, which depends on the weight of water; thus, a bank ten feet high should have thirty-three feet seat at the least, as it ought to be three feet wide at the top, or if more the better: and it should be made so high at first, as that when it settles it may be about a foot and half higher than the water is intended to be kept. Before laying the foundation, it is necessary to dig a spit or two deep, for the space of three feet, which must be filled in with good strong clay, and well rammed; for if the foundation be laid on mire or earth, the water is very likely to undermine it, which in time will weaken the head: the

same breadth of clay ought to be continued to the top of the bank, and both the clay and earth must be well rammed: when completed, the head or bank should be swarded, which must be watered, trodden, and rolled, so that it may be an entire sward before the water is let in.

Puddling is by far the best method, expense excepted; and where a fish-pond is intended, if the bottom were ploughed and sown with barley or oats, and the water let in when the corn is full of leaf and ready to go into ear, it would be an excellent set-off for the fish.

If the summit of the bank be required to form a walk, the seat should be fifty feet broad, when the top will be thirteen.

Provided the bank be made secure at first, nothing can hurt it except land-floods. There are two ways of obviating this danger:—first, by fixing at each end of the bank two side-sluiques, to discharge the water: and secondly, by forming channels of diversion, so high up in the current as to lead the water upon the sides of the hill above the dam; by this means all the water may be turned out when necessary, so that none shall come upon the bank.---As to grates, they are mentioned in another part of this work.

Where it can be contrived, it is much the best way to have channels for letting the water on and off; so that the ponds may be filled by one, and emptied by the other. The ponds in Hyde-park are admirably contrived in this respect; for the current of the valley is carried alongside the ponds, and can be let in or out at pleasure. The first requisite is, to lay down the sluice, with trunks sufficient to convey the water through the head of the bank, or into those side-channels.

Gentlemen often have fish-ponds made on hills, by way of ornament; than which nothing so fully shews

the nature and utility of Mr. Elkinton's draining process, or so much simplifies the operation of draining in miniature: for at a certain distance below, especially if the soil be clay, there is sure to be seen some wet place, producing either rushes or water-plants, such as flags or a poor blue grass. Therefore, if a gentleman put more value on his land looking well, and being profitable, than on a mere exhibition of water, he should pay regard to situation in forming his fish-ponds; as making a pond on a hill is like having a leaky cistern at the top of a house, which will infallibly rot or injure some part of the building: thus a fish-pond, if only one acre of water, will often damage, or perhaps half destroy, from ten to twenty acres of land, should care not be taken to cut drains where it first makes its appearance.

SECTION V.

Stocking Ponds.

IN moving fish, great caution should be used not to bruise them, and to handle them as little as possible. When the water is nearly let off, and nets are employed, the fish (which will probably be too numerous to take at one haul), should be drawn directly to shore, but taken out of the net while within about eighteen inches of water; they will thus be clear from mud, and less liable to injury. Hop-nets, fixed upon poles, are best to land them, observing not to put too many fish into the net at one time: if nets of this sort of mesh are not to be had, flag baskets are a good substitute. But when a pond is designed to be emptied, and the fish shifted, these hop-nets should be in readiness; as in them the fish can be placed separate, and afterwards cleansed from the mud, with little trouble and less danger.

When fish are to be carried to a distance, it is best performed in winter, that is, from November until March is over: should there be a necessity for their being removed during the summer, the night is the only time for doing it with any kind of safety. Live carp or tench are the most safely conveyed on clean, dry, wheat straw; being laid flat upon it at the bottom of the carriage, or in flat-bottomed baskets: but large fish will not bear to lie one tier over another for any considerable time; nor is it worth the risk; persons who know the value of full-grown fish will willingly bear the expense of a second journey to convey them uninjured, rather than hazard the destruction of one half of them. The sooner fish that are to be moved are stowed in the carriage or baskets, after being taken from the pond, the better; they will be more likely to bear the deprivation of their element when just taken from it, than after being exhausted by their struggles on the grass. For very small fish, water-carts may answer, and preserve them well; but the mere jolting of the water must drive large fish either against the sides of the cask or against each other, with such violence as to be extremely injurious, and generally fatal to more than half the cargo. The cask must be replenished in its progress, wherever clean water can be obtained: in taking the fish out, hop-nets should be held underneath the stream from the opening whence the fish are to issue; and after receiving a few, they should be emptied into the water for which they are designed.

SECTION VI.

Fish-ponds of a large size.

THE first material point in the management of fish, is to be able to obtain them immediately when wanted; a

second is, to have supplies coming forward to recruit the stock as it is diminished : these objects can never be secured without observing order and method.

The ancients were so particular about their fish, and the ponds in which they were kept, that their estimated value was immense.—The fish in the ponds of Lucius sold, after his discease, for (24,218*l.* 1*s.* 0*d.* sterling). Caius Hertius first introduced the keeping of lampreys in stews, and lent Cæsar, during the time of his triumph, six hundred of these fish, for which he would receive no equivalent in money, nor any other commodity ; but expressly conditioned the payment to be the same number and weight of lampreys : his ponds and fish about his house, which was itself extremely small, were sold for 32,291*l.* 1*s.* 4*d.* To return to more modern times, and when heirs do not find such a resource from their ancestors' fish, yet in very populous countries, like China and Holland, where every article of food is in request, and every spot of ground turned to the best account, great attention is paid to the structure and management of fish-ponds. Experience has taught the natives of those places to ascertain the quantity of every kind of fish which any space of ground can support : in the former, it is supposed that ninety brace of good-sized carp, and forty of tench, are a full stock for one acre of water, and that a more numerous store would languish and die ; in the latter, a far greater number will thrive in a similar situation.

In some parts of Germany, where the domestication of fish is practised, suits of ponds are so contrived, that the owners can empty the water and fish of one pond into another. The empty pond is then ploughed, and sown with barley : when the grain is in ear, the inhabitants are again admitted ; and by feeding on the corn, are more expeditiously fattened than by any other ma-

nagement. For all their ponds, milers are thought preferable, as they become sooner fat than the spawners.

In this country, many acres of swamps and marshy grounds, producing little feed for cattle, and in their present state but a trifling rent, might be profitably converted into fish-ponds; particularly within twenty or forty miles of the metropolis. An acre of water (after being two years stocked) will annually yield two hundred carp and one hundred tench, that will sell upon the spot, to the London fishmongers, at one shilling each;—an income to be obtained from no other produce to which such sorts of land can be appropriated. The produce and profit to be derived from fish-ponds have not yet been properly attended to in various situations, so as to afford certain conclusions; nor is it well ascertained what is the annual increase in weight of several kinds of fish in different periods of their growth, and under different circumstances of soil and water.

Sir Henry Fetherstonhaugh, in a pond of twenty acres, but which the mud has reduced to fifteen or sixteen acres of clear water, generally has a stock of twelve hundred carp, and an equal number of tench. This is at the rate of seventy-five brace per acre; and in this proportion they thrive well. Suppose this water adds half a pound per annum to each of the 2,400 fish which it feeds, the produce is 1,200 lb weight: this, at 6*d.* a pound, is 30*l.*, and for fifteen acres 40*s.* an acre; or at 9*d.*, 3*l.* per acre.

Mr. Loveden, in 1803, gave the following account of the value of the stock of fish-ponds in different situations. He described one in his own park, at Buscot, in Berkshire, which has no other supply of water than the rains, &c. but receives all the drains of the house and stables, from which, in December, 1802, he let off the water, and took 386 carp, eight pike (which had been put in by

mistake), and seven perch; ninety-four of the carp being from 3 to 3½ and 4 lb each. The eels were from 3 to 4 lb; the largest pike only 4 lb. It was fished, and nearly the like quantity of carp taken, six years before; when the carp were nearly equal in size, from 2 to 3 lb each: this time there were several of 1 lb, none under; and Mr. L. was of opinion, if the stock put in had been all of similar size and age, at the last fishing very little or no difference would have been found in the appearance or weight, if any. The eels from this pond were manifestly distinct breeds: one produced from the silver eels of the Thames, which the gamekeeper had put in: the other of a much browner colour, and a toad-like head, which must have originated in the pond, in which were bred great quantities of muscles.

In forming a piece of water of large dimensions, some competent person ought to be employed, to inspect and insure the bank being made durable; and who will likewise so guard against floods, that it may not be endangered by sudden pressure. A common tumbling-bay at each extremity of the head, fixed at the usual level of the water, with iron gratings a foot or eighteen inches above the level, will allow a proper vent for the superfluous water; and also stop any fish from escaping through, if disposed to move in consequence of any rapid influx. The width of the grating must be according to the quantity of water which sudden rains can occasion to flow through the pool; and if made to form a sort of triangle towards the pond, it will perhaps yield a quicker passage to the stream, than if the grating were set straight, and only to cover the breadth of the tumbling-bay. The sluice-pipe should be laid low enough to draw off all the water, and be extraordinarily well rammed with clay at the bottom: the plug must be heart-of-oak; as, indeed, should all the timber-work. The

planks should surround the plug, and be so perforated as to allow the water to escape; but the holes must be so small as not to permit any fish to pass: and the whole should be surrounded with a frame, to prevent its being strained by boats running against it, which might cause it to be leaky.

All ponds should have rivulets or brooks running through, or considerable fresh-springs arising in them; so that there is a current, though ever so small, passing through them. One or other is indispensable, not only to assist the feeding and comfort of the fish during the heat of summer, but as it operates against the effects of frost, which, without a current of water (that always conveys air), will frequently be fatal to a whole pond of valuable fish. The tench is the only fish that is frost-proof: among the other sorts there is little difference; when one complains, they are all in imminent danger; but a small current of water will avert it, as fish are never known to suffer by frost in ponds so supplied, and when the water is so deep as not to be wholly congealed down to the mud. In ponds that have sluices, the starting the plug, so as to lower the water but a few inches, will afford that current of air, so as to revive the fish. Many persons break holes in the ice, putting in straw, dung, wood, faggots, &c. and do not suffer the holes to be frozen over, by frequently moving them; but all these expedients are ineffectual: the only way, therefore, to save fish in waters shut out from all natural supply of air by frost, is to remove them as quickly as possible, after shewing themselves under the ice (for fish naturally in cold weather lie as deep as they can, and nothing but the pangs of death makes them move), into other waters supplied by a current.

After a pond has been shut up by a ten-days' freezing,

if any suspicion concerning the state of the fish arise, by cutting a hole in the middle and two or three at the sides their condition may be known; if unwell, they will appear: and there is no other alternative but to take out every one that comes to the holes; those that are taken out may be preserved. Fish thus secured, when other waters are not immediately at hand, may be put into large tubs, in some out-house, not far from a fire, until they appear recovered; where, by freshening the water every twelve hours, they may be kept until there is an opportunity to convey them to other receptacles.

The following fact, which is credibly asserted, shews that the flesh of fishes may be recovered or relieved from the effects of violent cold, by a different process from that used with other animals.—It is said, that fish frozen with a shell of ice upon them have been put into water warmed to the Midsummer heat, and in six or seven hours the ice has been dissolved, and the fish were brisk and well. Weeds in ponds, however unseemly to the eye, preserve them from the ravages of poachers; they also afford shelter for the fish to spawn in, and form to them an agreeable shade in sultry weather, especially the water-lilies and flags for pike and perch: they likewise serve to retain the current, and thereby, in summer, assist in keeping up a greater body of water. Their growth, as well as all other water plants, is known to increase proportionately to that of vegetation in the open air, after a shower of rain. If water (from their foul appearance) must be cleared from weeds, swans will do it effectually: two pair of swans kept a large piece of water at Burghley, the Marquis of Exeter's, free from weeds, which before employed three men for six months in the year to keep it tolerably clean.

In stocking ponds with carp, the utmost caution

should be observed to procure the stock from large fish. In Sussex, where perhaps this fish is more numerous, and greater attention paid towards their improvement, than in any other county, persons that are concerned with waters, and who consider their produce as an article of commerce, keep breeding carp of the weight of from 18 to 20 lb each. The young of such fish attain a growth almost incredibly more rapid than those derived from stunted carp. Store tench ought to be selected from large and healthy fish, or they will never answer their owner's wishes or expectations.

Ponds should not be over-stocked, nor, in the opinion of many, be suffered to remain unfished longer than three years, by which it will appear what fish thrive best; and by continuing empty some months, the bottom may be sown with oats or barley, which will be when grown good food. In ponds so situated as to have communication with each other, never put into the upper pond either pike, bream, or roach: for the spawn will get through the gratings, and by that means all the lower ponds will unexpectedly swarm with them. The pike will destroy all the fry of the carp and tench; and the two latter will consume all the food, which should be the sustenance of both the parents and progeny. Pike, bream, or roach, should therefore on no account be ever put in the first or highest succession of ponds.

The pond should have a warm and open exposure, with soft water; and, before it is stocked, must be cleared of all sorts of voracious fishes, and other animals, as perch, pike, eels, and trout—the water-beetle—frogs, and newts or lizards: and all kinds of water-fowl kept from it. Some advise the stock to consist of carp and tench, three to a square perch: and in first stocking large waters, where they extend to three or four acres or upwards, carp three hundred to the acre; in restock-

ing, after two or three years, four hundred. For tench, the first should be more numerous than the carp; and the restocking may be so high as seven or eight hundred to the acre: perch being much greater breeders, six hundred of them will be sufficient.

Water that is rich and white, suits carp the best; that which has a somewhat thickish appearance, and a great deposition of muddy matter, is preferable for tench: perch may be raised in almost any water. Eels succeed best where the ponds are fed with springs, and there is a large portion of rich sediment. Pike should only be kept in separate breeding-ponds, where the supply of small fry is very considerable, and they are not wanted for stores. Carp, tench, and perch, and a few eels occasionally, are the fish principally cultivated with a view to profit; but perch and eels should not be admitted where the waters are but thinly stocked, as they are great devourers of young fish. Carp and tench answer the best together, when the ponds are extensive; in others, the former, being the most powerful fish, beats and deprives the latter of his food. Carp seldom are productive to the owners in less ponds than half an acre, whilst tench thrive in those of any size. Perch and eels, also tench and eels, succeed well together; and it more frequently happens that carp injure themselves by breeding than tench.

SECTION VII.

Formation and Use of Nets.

IN making a drag-net, the size of the mesh should never be less than one inch and quarter: there should be an extent of three times its length and twice its depth of the plain net before it is hung upon the cork and lead

lines (that is, if the drag is meant to be twenty yards long and twelve feet deep, there must be sixty yards of net in length and breadth). For a sheet-drag, if made with a cod, it must be let in with a caul as to the windings, so that in fishing it keeps a proper open centre. As drag-nets are usually hung, any one who is in the water when they are used, will feel when the lines are hauled—the lead line above the calf of his leg, and frequently above his knee, and that continue to very near the bosom of the net. There is no occasion to comment upon the success such an implement affords.

Two or three flews should always be used with a drag; one or two flews can then be kept forward for the drag to force to: and in fishing every hole, the drag should be backed with a flew; that is, after the drag approaches close to the first flew, of course that will be pulled on one or the other side the river: if any fish are in, they should be taken out; and, as soon as the drag-net has passed, the flew be drawn back into its former situation. When the fish that are disturbed by the drag perceive an opening to escape beneath it (from the lead-lines not keeping a regular sweep at the bottom), they strike rapidly to their old haunts, and thus run headlong into the back flew: the discolouration of the water from the trampling of the people in it, together with the motion of some part of the drag upon the mud, all contribute to the success of the expedition, by which the best fish will always be captured. A drag-net should always be used up the stream; however low the water in the river may be drained, for the convenience of those fishing in it, there will be current sufficient to preserve the water clear enough for stumps and haugs of various descriptions to be avoided; besides, the drain of the water keeps the meshes of the net extended, and enables it to

fish with every advantage; on the contrary, when drawn down the stream, the muddying of the water progressively prevents the discovery of stumps, stubs, &c. that would injure the net, and aids the escape of the fish; and moreover drives the net into folds, which the leaves of weeds, twining the same way, not a little assist.—The lint will sometimes outlast three sets of walling, and still remain perfectly good.

SECTION VIII.

Stews.

THE great use of stews is, to have the fish ready when wanted; therefore some place in the garden, near the house, is the most proper; and the number of them must be according to the quantity of fish: their size should be two rods long and three wide. In forming them, the sides should be cut sloping to the middle, so as to be at each end like the mouth of a horse-pond, for the convenience of drawing out the net: by this form the stews will be deepest in the center, and the fish can resort to the shallows, in which they naturally delight, at the same time that they will thus thrive the better. Carp, tench, and eels, are the only fish that improve in stews: perch, in hot weather, will waste and die.

SECTION IX.

Feeding Fish.

IN stews, from October till March, there is no occasion to feed the fish; but from March till October they must be fed, like fowls. The reason for feeding in summer, and not in winter, is, that fish lie close in cold

weather, and feed little, not caring to stir, especially to come upon the shoals, where it is proper to give them their food. It is possible to keep one thousand on an acre with feeding; but in that case they must be as regularly fed as hogs. Any sort of grain boiled is good for the purpose; but malt bruised is the best: grains, while sweet, are very good, and nothing is so cheap; but a bushel of malt will go as far as three bushels of grains. The refuse of bread, steeped in beer or ale, is also very good; two quarts will serve thirty carp; they ought to be fed twice a day, morning and evening.

Fish should be fed at the mouth of the stew, where the water is about half a yard in depth: by feeding in that manner, the deep part of the pond is kept clean. There are many contrivances used in feeding: some people boil peas, which are put into a sort of trough, and let down into the water by ropes; others lower the kettle the peas are boiled in, when the fish will take out every pea. But there is no necessity for this trouble, as the fish will readily find the meat if thrown into the water. As to pike, they must be fed with other fish—eels, bream, perch, &c. There are many fish will feed and thrive on the dung of cattle or sheep; and particularly on human excrement. Eels will feed greedily on horse-flesh, or carrion of almost any kind.

SECTION X.

Fish Farming.

THIS being a new project, and not in general practice, it may be thought strange by some persons; but there are many acres in the united kingdoms, which are now an entire waste, and would cost more to render them fit for the growth of crops than they would be worth,

that, where water can be obtained, would produce more human food than as many acres in the most improved cultivation; for fish, by proper management, are so amazingly prolific, that they in a short time become highly valuable. I have formerly thought, with many others, that there were some waters in which fish would not breed; but, from several late experiments that have been tried, I am now of opinion, where fish have failed in their breeding it has been owing to foreign obstruction—from the keeping ducks and geese, from frogs, &c. I am thoroughly convinced, that the reason the tench in my pond at Asgarby, though they fed so uncommonly well, did not breed, was entirely owing to the great number of ducks and geese; which is corroborated by their destroying the immense breed of carp in a pond at Doncaster; as also by the tench which were brought from Asgarby, when put into a pond at Doncaster, where ducks and geese were not admitted, breeding very abundantly: therefore these animals should be carefully kept from the breeding-ponds. The size of my pond at Asgarby was about sixty feet long and thirty wide, with four feet depth of water, of a clear nature, although supplied during the summer from small springs that took their rise in a bog, mixed with the drainings from the house, stables, and fold-yards, which were very considerable during the winter, there being about seventy head of horses and cattle, besides pigs; but the buildings were at such a distance that there was no mud seen in the pond. The stock of tench continually kept in this pond was about thirty brace; their increase about 1 or 1½ lb yearly.

I made a new pond at Asgarby, the size of the former, and stocked it with pike, fifteen brace of different sizes, from ½ lb to 2 lb each, and one brace of large pike, the one weighing 8, the other 11 lb, not knowing, at that

time, these fish will devour their own species. Some time after this pond was stocked, in the season for ducks hatching, the ducklings kept continually decreasing in number; and, not suspecting that pikes would eat them, we supposed rats or crows to be the depredators: but it happened, as one of the servants was standing by the side of the pond, he saw a large pike make a spring at one of the young ducklings, seize it by the nib, and bite the under part off. This information being conveyed to me, I ordered the net to be drawn through the pond; when we took the largest pike, and in his belly were found a duckling and a frog. Still I did not think that all pikes would eat ducks, but judged it was this particular pike that had taken a fancy to them; but, behold! they continued to decrease: I therefore caught the other large pike. In drawing for these two, we took very few of the small pike; and on examining the pond we could find but half a dozen of the largest sized ones left: thus it appeared the two large pike had devoured eleven brace of the small pike. In six months after that time the half dozen had increased very little in size, and had made no addition to their number.—The above account is given to shew the necessity of stocking ponds with caution, to render them profitable: indeed, it seems, from various experiments tried in breeding fish, that the largest fish purchased at their full price are cheaper to stock ponds with, than small ones given.

Carp appear to be more prolific than tench; though tench bear a better price in the London markets than carp, by 4*d.* a pound, and are ready for use at a more early age. Carp sell for more by 2*d.* per pound than pike of a moderate size. Small sized eels are generally about 10*d.* a pound: an eel of 2 or 3 lb weight is worth 18*d.*; and one of 1½ lb will sell for about 1*s.* or 14*d.*

As to pike, it is clear, from the different experiments tried worthy of remark, particularly those by Sir Cecil Wray and Sir Joseph Banks, that to keep a number of large pike in a pond would be attended with as much expense as the support of a pack of hounds, unless there be a communication with some other water, whence a constant supply of food can be obtained.

Thus I have given an ample description of the best methods of breeding and managing all the various kinds of Live Stock deserving notice, together with much incidental, and it is presumed valuable, information, nearly the whole from my own personal practice and experience: convinced, therefore, of the justness of my remarks and conclusions, however I may have differed, on particular points, from the speculatist or the critic, I flatter myself the work will be found to merit the attention, not only of the *FARMER* and the *GRAZIER*, but also of the *AGRICULTURIST*, the *PRIVATE GENTLEMAN*, and the *PUBLIC IN GENERAL*.

APPENDIX.

HAVING occasion to investigate some business relative to the live and dead markets in London, in the course of my enquiries I obtained information that I am persuaded will prove interesting, not only to the grazier and the butcher, but to the consumer likewise. By consulting the following tables, a judgment may be formed as to the time when stock is likely to fetch the best price, the returns of the Smithfield markets having been carefully examined and correctly stated for the whole year. I have first given the number of beasts, sheep, &c. exhibited for sale on every market day; to which is added the price sold at in each week, in both the live and dead markets, the whole amount being 5,264,742*l.* 10*s.* The prices stated are averaged from the information of salesmen and butchers of the greatest respectability, but are supposed to be below the last year's price: in regard to the aggregate of cattle, &c. I am of opinion it is greatly underrated, as whole numbers are given, from which it is evident the odd figures have been omitted. It is also supposed that of sheep and calves there is nearly one tenth brought in dead, and likewise a great deal of beef; and some of all kinds are bought in the country, never appearing at Smithfield. As to pigs, nearly half of them are purchased on commission for the distillers, and many are sold for pork: I know one man that kills between two and three hundred weekly, who buys almost the whole in the several country markets, and at the places where they are fed.

It is estimated that there are 5000 butchers in this metropolis and the vicinity; and the consumption of sheep and lambs is taken at 21,600 a week. But some of the oldest and best informed butchers are of opinion, that between five and six sheep per week is the average of mutton sold by each butcher; reckoning it at five, there will be 125,000 dead carcasses brought to the markets in the year. This calculation, there is every reason to believe, is near the truth, as there are many butchers who sell pork only; taking them at one in ten, the number will be 500, which being deducted from the 5000, leave 4500 butchers, between whom the sheep and lambs, living and dead, are to be divided.

The number of beasts' carcasses sold by each butcher is averaged at one and a quarter for two weeks, or 165,100 by the whole yearly; and about 3000 are bought for the use of the navy: milch cows sold, 50 per week. The statement for the annual consumption of carcasses would appear as follows:—

Brought in living and dead.

Return at Smithfield	152,660
Dead carcasses brought in . . .	12,440
Total . .	<u>165,100</u>

It is presumed that the quantity of meat stated to be sold by the cutting butchers is correct, or nearly so: but in regard to the number of dead carcasses I have some doubt; for in a small pamphlet, containing the report of an examination of salesmen and butchers before a committee of the House of Commons, it appears that great numbers of both beasts and sheep come direct to the carcass butcher; therefore it is probable some part of the 12,440 beasts are received by the butchers alive, and con-

sequently do not appear at Smithfield. Likewise many of the supposed number of sheep and lambs, which is 125,000, may be brought immediately to the carcase butcher; although, during the winter months, meat comes from very great distances, and from parts I should not have imagined: I have seen legs of mutton exposed to sale in Newgate market, that were sent from Leeds in Yorkshire. Thus, notwithstanding the foregoing calculation of the quantity of meat consumed appears large, I am of opinion it is very far from being exaggerated.

Bacon chiefly comes from the country, and is generally sold under the price of pork, by from 1*d.* to 2*d.*, and some 3*d.*, per pound, according to its quality: that which bears the highest price is principally brought from Yorkshirc, and sells at this time at 9*d.* per pound.

The number of beast salesmen, jobbers, and graziers, whose names are on the books of the clerk of the market for 1803, is 146; the total expense on each beast sold by salesmen is 3*s.*: there are also 56 sheep salesmen; the expense attending the sale of each sheep is 6*d.*: the total number of salesmen, jobbers, and others, selling for themselves, being 202. There are about twenty salesmen who attend regularly every market day, winter and summer.

Head of Cattle, Sheep and Lambs, Calves, and Pigs, sold at Smithfield in the year 1808, from January 4th to December 30th.

Date.	Market days.	No. of Beasts.	No. of	No. of Calves.	No. of Pigs.
			Sheep and Lambs.		
January 4th	Monday	2000	12,700	150	500
8th	Friday	1,700	4,500	150	400
11th	Monday	2,100	12,500	120	500
Carried over	.	5,800	29,700	420	1,400

Date. 1808.	Market days.	No. of Beasts.	No. of ^o Sheep and Lambs.	No. of Calves.	No. of Pigs.
	Brought over	5,800	29,700	420	1,400
January	15th Friday	1,100	5,000	120	400
	18th Monday	2,100	12,500	120	500
	22d Friday	1,100	5,000	120	400
	25th Monday	1,800	14,200	120	450
	29th Friday	1,300	4,200	150	500
February	1st Monday	2,750	15,500	120	500
	5th Friday	1,100	3,500	120	400
	8th Monday	2,000	12,200	100	500
	12th Friday	650	3,400	120	400
	15th Monday	2,100	11,000	120	500
	19th Friday	900	3,800	150	400
	22d Monday	2,000	12,000	120	500
	26th Friday	700	3,500	120	400
	29th Monday	2,100	10,800	150	450
March	4th Friday	800	3,000	120	350
	7th Monday	1,200	13,300	100	400
	11th Friday	750	3,000	100	500
	14th Monday	1,200	13,300	100	400
	18th Friday	750	3,000	100	500
	21st Monday	2,100	12,500	120	450
	25th Friday	900	3,300	150	420
	28th Monday	2,100	13,200	120	420
April	1st Friday	850	2,500	150	400
	4th Monday	1,800	10,500	100	400
	8th Friday	600	2,200	150	420
	11th Monday	2,000	14,100	120	400
	15th Friday	800	2,400	160	500
	18th Monday	1,800	10,200	100	300
	22d Friday	700	2,500	120	300
	25th Monday	1,700	12,200	120	400
	29th Friday	550	3,500	200	300
May	2d Monday	2,200	10,500	120	500
	6th Friday	550	5,300	150	500
	9th Monday	1,950	11,200	150	300
	13th Friday	750	5,600	160	560
	16th Monday	1,800	11,800	150	250
	20th Friday	600	5,700	160	250
	23d Monday	1,400	13,100	150	400
Carried up		57,350	334,200	5,320	16,520

		No. of			
Date.	Market	No. of	Sheep and	No. of	No. of
1808.	days.	Beasts.	Lambs.	Calves.	Pigs.
Brought up . .		57,350	334,200	5,320	16,590
May 27th	Friday	350	8,000	200	420
30th	Monday	1,700	14,700	150	350
June 3d	Friday	500	8,700	260	250
6th	Monday	1,400	14,300	150	250
10th	Friday	700	6,700	220	300
15th	Monday	2,100	14,500	160	250
17th	Friday	700	8,300	400	280
20th	Monday	2,100	16,200	180	200
24th	Friday	700	6,500	280	250
27th	Monday	1,600	16,700	180	150
July 1st	Friday	650	6,700	200	200
4th	Monday	1,600	16,200	200	300
8th	Friday	650	6,500	200	200
11th	Monday	1,420	16,000	200	250
15th	Friday	470	8,000	320	150
18th	Monday	1,400	16,700	300	200
22d	Friday	700	7,500	400	200
25th	Monday	1,600	15,600	300	300
29th	Friday	500	6,700	400	300
August 1st	Monday	1,400	19,000	250	300
5th	Friday	800	7,500	240	180
8th	Monday	2,000	20,800	250	300
12th	Friday	780	7,500	280	200
15th	Monday	1,400	20,200	200	200
19th	Friday	800	7,000	250	150
22d	Monday	2,200	21,500	200	200
26th	Friday	750	8,000	200	180
29th	Monday	2,100	22,000	180	180
September 2d	Friday	700	7,400	200	300
5th	Monday	2,000	18,500	180	300
9th	Friday	700	6,500	220	300
12th	Monday	2,200	22,500	150	300
16th	Friday	1,000	6,500	230	400
19th	Monday	2,700	21,300	170	400
23d	Friday	750	8,070	150	400
26th	Monday	2,500	19,800	200	200
30th	Friday	660	6,300	190	300
October 3d	Monday	2,260	16,500	180	300
Carried over . .		105,890	814,800	13,940	26,410

Date. 1868.	Market days.	No. of		No. of Calves.	No. of Pigs.
		Beasts.	Sheep and Lambs.		
Brought over		105,890	814,800	13,940	26,410
October 7th	Friday	900	5,100	220	300
10th	Monday	2,900	15,500	120	320
14th	Friday	1,000	4,600	180	250
17th	Monday	3,200	17,300	120	400
21st	Friday	900	4,500	100	320
24th	Monday	3,500	17,400	150	400
28th	Friday	1,000	4,100	200	300
31st	Monday	2,950	15,400	120	320
November 4th	Friday	950	4,400	200	250
7th	Monday	3,100	15,000	150	200
11th	Friday	900	3,600	180	300
14th	Monday	2,600	15,400	120	300
18th	Friday	880	3,680	150	220
21st	Monday	3,200	15,500	130	320
25th	Friday	850	4,200	180	300
28th	Monday	2,600	13,600	120	350
December 2d	Friday	750	3,500	150	300
5th	Monday	2,750	13,500	150	300
9th	Friday	1,100	3,660	170	300
12th	Monday	3,250	12,740	120	320
16th	Friday	800	3,550	160	300
19th	Monday	3,160	13,830	150	350
23d	Friday	1,690	3,950	130	300
26th	Monday	1,800	12,100	120	280
30th	Friday	840	4,100	120	400
Total		152,660	1,045,210	17,750	34,110

Averaging the cattle at 20*l.*, the sheep and lambs at 40*s.*, the calves at 50*s.*, and the pigs at 45*s.* each, the sum returned in Smithfield market will be as follows, viz.

	<i>L.</i>	<i>s.</i>	<i>d.</i>
Cattle 152,660 at 20 <i>l.</i> a piece	3,053,200	0	0
Sheep and lambs 1,045,210, at 40 <i>s.</i>	2,090,420	0	0
Calves 17,750 at 50 <i>s.</i>	44,375	0	0
Pigs 34,110 at 45 <i>s.</i>	76,747	10	0
Total	5,264,742	10	0

Price of Meat at Smithfield, Newgate, and Leadenhall Markets, at per stone of 8 lb.; exclusive of the Offal, which consists of Head, Entrails, and Hide, and is worth 1d. per pound.

Date. 1868.	Meat.	SMITHFIELD.		NEWGATE & LEADENHALL.	
		Price sold at, live meat.		Price sold at, the carcase.	
		s. d.	s. d.	s. d.	s. d.
January 1st	Beef . .	3 6	a 4 6	- 2 8	a 4 4
	Mutton . .	3 6	a 4 6	- 3 0	a 4 8
	Veal . .	5 6	a 6 6	- 4 0	a 6 8
	Pork . .	5 0	a 6 0	- 4 0	a 5 0
11th	Beef . .	3 6	a 4 8	- 3 2	a 4 8
	Mutton . .	3 10	a 5 0	- 3 4	a 4 8
	Veal . .	5 6	a 6 6	- 4 4	a 6 4
	Pork . .	4 8	a 5 4	- 4 4	a 5 4
18th	Beef . .	3 6	a 4 8	- 3 2	a 4 8
	Mutton . .	3 10	a 5 0	- 3 4	a 4 8
	Veal . .	5 6	a 6 6	- 4 4	a 6 4
	Pork . .	4 8	a 5 4	- 4 4	a 5 4
25th	Beef . .	3 8	a 4 8	- 2 8	a 4 4
	Mutton . .	3 10	a 5 0	- 3 8	a 4 8
	Veal . .	5 6	a 6 6	- 4 8	a 6 10
	Pork . .	5 6	a 6 0	- 4 4	a 5 4

Average price in January.

	s. d.		s. d.
Beef . .	4 1	Beef . .	3 2½
Mutton . .	4 3½	Mutton . .	4 5
Veal . .	6 0	Veal . .	5 5½
Pork . .	5 3½	Pork . .	4 9

	s. d.	s. d.	s. d.	s. d.
February 1st	Beef . .	3 8	a 4 8	- 3 0
	Mutton . .	3 10	a 5 0	- 3 0
	Veal . .	3 6	a 6 8	- 4 0
	Pork . .	4 6	a 5 8	- 4 4
8th	Beef . .	4 2	a 5 4	- 3 0
	Mutton . .	4 4	a 5 2	- 3 0
	Veal . .	6 6	a 7 6	- 5 0
	Pork . .	5 2	a 6 2	- 0 0
15th	Beef . .	4 2	a 5 4	- 3 0
	Mutton . .	4 4	a 5 2	- 3 0

Date. 1808.	Meat.	SMITHFIELD.		NEWGATE & LEADENHALL.	
		Price sold at, live meat.		Price sold at, the carcass.	
		s.	d.	s.	d.
February 15th	Veal . .	5	6 a	7	6 -
	Pork . .	5	2 a	6	8 -
22d	Beef . .	3	6 a	4	6 -
	Mutton . .	4	4 a	5	2 -
	Veal . .	5	6 a	6	6 -
	Pork . .	5	0 a	6	2 -
29th	Beef . .	3	8 a	4	4 -
	Mutton . .	3	10 a	5	0 -
	Veal . .	5	8 a	7	0 -
	Pork . .	4	6 a	6	0 -

Average price in February.

	s.	d.		s.	d.
Beef . .	4	4	Beef . .	3	8½
Mutton . .	4	7½	Mutton . .	3	10½
Veal . .	6	2½	Veal . .	5	5
Pork . .	5	6	Pork . .	4	11½

	s.	d.		s.	d.
March 7th	Beef . .	3	6 a	4	6 -
	Mutton . .	3	10 a	5	0 -
	Veal . .	5	6 a	6	6 -
	Pork . .	4	4 a	5	0 -
14th	Beef . .	4	0 a	5	0 -
	Mutton . .	4	4 a	5	4 -
	Veal . .	5	6 a	7	0 -
	Pork . .	5	4 a	6	0 -
21st	Beef . .	4	8 a	5	6 -
	Mutton . .	4	4 a	5	4 -
	Veal . .	5	6 a	6	6 -
	Pork . .	4	6 a	6	0 -
28th	Beef . .	4	2 a	5	0 -
	Mutton . .	4	2 a	5	4 -
	Veal . .	6	0 a	7	0 -
	Pork . .	5	4 a	6	0 -

Average price in March.

	s.	d.		s.	d.
Beef . .	4	6½	Beef . .	3	11½
Mutton . .	4	8½	Mutton . .	4	3½
Veal . .	6	2½	Veal . .	4	10½
Pork . .	5	3½	Pork . .	5	2½

Date. 1808.	SMITHFIELD.				NEWGATE & LEADENHALL.			
	Price sold at, live meat.				Price sold at, the carcase.			
	s.	d.	s.	d.	s.	d.	s.	d.
April 4th Beef . .	4	0	a	4 8	-	-	3 8	a 4 8
Mutton . .	4	2	a	5 0	-	-	3 8	a 4 8
Veal . .	5	6	a	7 0	-	-	3 6	a 5 8
Pork . .	5	2	a	6 0	-	-	4 8	a 6 0
11th Beef . .	3	10	a	5 2	-	-	3 6	a 4 8
Mutton . .	4	0	a	5 4	-	-	4 0	a 4 8
Veal . .	5	6	a	6 8	-	-	4 0	a 6 0
Pork . .	5	4	a	6 3	-	-	4 8	a 5 8
18th Beef . .	4	0	a	5 2	-	-	3 6	a 4 6
Mutton . .	4	4	a	5 4	-	-	3 8	a 4 8
Veal . .	5	4	a	6 0	-	-	3 0	a 5 8
Pork . .	5	4	a	6 2	-	-	4 8	a 5 4
Lamb . .	0	0	a	7 8	-	-	7 0	a 8 0
25th Beef . .	4	0	a	5 0	-	-	3 8	a 5 0
Mutton . .	4	4	a	5 4	-	-	4 0	a 5 0
Veal . .	5	4	a	6 0	-	-	4 4	a 6 0
Pork . .	5	0	a	6 0	-	-	4 8	a 5 8
Lamb . .	6	6	a	7 6	-	-	5 4	a 7 8

Average price in April.

	s.	d.		s.	d.
Beef . .	4	5½	Beef . .	3	11½
Mutton . .	4	8½	Mutton . .	4	2½
Veal . .	5	11½	Veal . .	4	10
Pork . .	5	7½	Pork . .	5	2
Lamb . .	7	2½	Lamb . .	7	0

	s.	d.	s.	d.	s.	d.	s.	d.
May 2d Beef . .	4	6	a	5 4	-	-	4 4	a 5 4
Mutton . .	4	6	a	5 4	-	-	4 8	a 5 8
Veal . .	5	6	a	6 6	-	-	4 8	a 6 8
Pork . .	5	0	a	6 0	-	-	4 8	a 6 0
Lamb . .	6	6	a	7 6	-	-	5 0	a 6 8
9th Beef . .	4	6	a	5 6	-	-	3 2	a 4 4
Mutton . .	4	6	a	5 4	-	-	5 0	a 5 8
Veal . .	5	6	a	6 4	-	-	3 0	a 5 4
Pork . .	5	4	a	6 2	-	-	5 0	a 6 0
Lamb . .	6	0	a	7 0	-	-	4 4	a 6 0
16th Beef . .	4	6	a	5 4	-	-	3 8	a 4 8
Mutton . .	4	4	a	5 4	-	-	4 8	a 5 4

Date. 1808.	SMITHFIELD.		NEWGATE & LEADENHALL.	
	Price sold at, live meat.		Price sold at, the carcass.	
	s. d.	s. d.	s. d.	s. d.
May 16th Veal . .	5 0	a 5 8	- -	4 0 a 5 6
Pork . .	5 4	a 6 0	- -	4 0 a 4 8
Lamb . .	6 6	a 7 0	- -	4 8 a 7 0
23d Beef . .	4 6	a 5 4	- -	4 0 a 5 0
Mutton . .	4 6	a 5 6	- -	4 8 a 5 4
Veal . .	5 6	a 6 6	- -	3 4 a 5 8
Pork . .	5 0	a 6 0	- -	4 0 a 5 0
Lamb . .	6 6	a 7 4	- -	5 4 a 7 2
30th Beef . .	4 6	a 5 4	- -	3 8 a 4 10
Mutton . .	4 8	a 5 6	- -	4 4 a 5 0
Veal . .	5 6	a 6 6	- -	4 0 a 6 0
Pork . .	5 4	a 6 2	- -	4 8 a 5 8
Lamb . .	6 4	a 7 6	- -	5 4 a 7 0

Average price in May.

	s. d.		s. d.
Beef . .	4 11½	Beef . .	4 3½
Mutton . .	4 11½	Mutton . .	5 4½
Veal . .	5 10½	Veal . .	4 9½
Pork . .	5 7½	Pork . .	4 11½
Lamb . .	6 9½	Lamb . .	5 10½

	s. d.	s. d.	s. d.	s. d.
June 6th Beef . .	4 6	a 5 6	- -	4 0 a 5 0
Mutton . .	4 6	a 5 8	- -	4 8 a 5 4
Veal . .	5 0	a 6 0	- -	5 0 a 6 0
Pork . .	5 0	a 6 0	- -	4 8 a 5 8
Lamb . .	6 0	a 7 0	- -	5 0 a 6 8
13th Beef . .	5 6	a 6 0	- -	4 0 a 5 2
Mutton . .	5 4	a 6 0	- -	4 4 a 5 4
Veal . .	5 6	a 6 0	- -	4 0 a 5 8
Pork . .	5 0	a 6 0	- -	5 0 a 6 0
Lamb . .	6 0	a 7 0	- -	5 4 a 7 0
20th Beef . .	5 6	a 6 0	- -	3 8 a 5 0
Mutton . .	5 4	a 6 0	- -	4 0 a 5 0
Veal . .	5 6	a 6 0	- -	3 8 a 5 8
Pork . .	5 0	a 6 0	- -	4 8 a 5 4
Lamb . .	6 0	a 7 4	- -	4 4 a 6 4
27th Beef . .	5 0	a 6 0	- -	3 8 a 4 6
Mutton . .	5 0	a 6 0	- -	4 0 a 4 8

Date. 1898.	SMITHFIELD.				NEWGATE & LEADENHALL.			
	Price sold at, live meat.				Price sold at, the carcase.			
	s.	d.	s.	d.	s.	d.	s.	d.
June 27th Veal . .	5	0	a	6 6	-	-	3 8	a 5 8
Pork . .	5	0	a	6 0	-	-	4 0	a 4 8
Lamb . .	6	0	a	7 0	-	-	4 4	a 5 8

Average price in June.

	s.	d.		s.	d.		s.	d.
Beef . .	5	6½	-	-		Beef . .	4	4½
Mutton . .	5	3½	-	-		Mutton . .	4	8
Veal . .	5	9	-	-		Veal . .	4	11
Pork . .	5	6½	-	-		Pork . .	5	0
Lamb . .	6	4½	-	-		Lamb . .	5	7

	s.	d.	s.	d.	s.	d.	s.	d.
July 4th Beef . .	5	0	a	5 6	-	-	3 8	a 4 8
Mutton . .	5	0	a	5 6	-	-	3 8	a 4 8
Veal . .	5	6	a	6 0	-	-	4 0	a 5 8
Pork . .	5	0	a	6 0	-	-	4 8	a 5 4
Lamb . .	6	0	a	7 0	-	-	4 0	a 6 8
11th Beef . .	4	6	a	5 4	-	-	3 6	a 4 8
Mutton . .	4	6	a	5 6	-	-	4 0	a 4 8
Veal . .	5	0	a	6 0	-	-	3 2	a 5 0
Pork . .	5	0	a	5 8	-	-	4 0	a 5 8
Lamb . .	6	0	a	7 0	-	-	3 8	a 6 4
18th Beef . .	4	6	a	5 6	-	-	3 8	a 4 8
Mutton . .	4	6	a	5 8	-	-	4 0	a 4 8
Veal . .	5	0	a	6 0	-	-	3 8	a 5 6
Pork . .	5	0	a	6 0	-	-	4 4	a 5 4
Lamb . .	6	0	a	6 6	-	-	4 0	a 6 0
25th Beef . .	4	6	a	5 6	-	-	3 6	a 4 6
Mutton . .	4	6	a	5 6	-	-	4 0	a 4 8
Veal . .	4	6	a	6 0	-	-	4 0	a 5 8
Pork . .	5	0	a	6 0	-	-	4 0	a 4 8
Lamb . .	6	0	a	6 6	-	-	4 0	a 6 4

Average price in July.

	s.	d.		s.	d.		s.	d.
Beef . .	5	0½	-	-		Beef . .	4	1½
Mutton . .	5	1	-	-		Mutton . .	4	3½
Veal . .	5	6	-	-		Veal . .	4	7
Pork . .	5	5½	-	-		Pork . .	4	8
Lamb . .	6	5½	-	-		Lamb . .	5	1½

Date. 1808.	SMITHFIELD. Price sold at, live meat.				NEWGATE & LEADENHALL. Price sold at, the carcass.			
	s.	d.	s.	d.	s.	d.	s.	d.
August 1st	Beef	. .	4	8	a	5	8	- - 3 10 a 4 10
	Mutton	. .	4	6	a	5	6	- - 4 4 a 5 4
	Veal	. .	4	8	a	5	8	- - 4 4 a 6 0
	Pork	. .	5	0	a	6	0	- - 5 0 a 6 0
	Lamb	. .	6	0	a	7	0	- - 4 8 a 6 4
8th	Beef	. .	4	8	a	5	10	- - 3 6 a 4 8
	Mutton	. .	4	8	a	5	8	- - 4 0 a 5 0
	Veal	. .	5	0	a	6	0	- - 3 4 a 4 8
	Pork	. .	5	0	a	6	0	- - 4 0 a 5 4
	Lamb	. .	6	0	a	7	0	- - 4 0 a 6 0
15th	Beef	. .	4	6	a	5	4	- - 3 4 a 4 4
	Mutton	. .	4	6	a	5	4	- - 3 4 a 4 0
	Veal	. .	5	0	a	6	0	- - 3 8 a 5 4
	Pork	. .	5	6	a	6	0	- - 4 8 a 5 4
	Lamb	. .	6	0	a	7	0	- - 3 8 a 5 0
22d	Beef	. .	4	6	a	5	2	- - 3 4 a 4 8
	Mutton	. .	4	6	a	5	4	- - 3 4 a 4 0
	Veal	. .	6	0	a	7	0	- - 4 0 a 6 0
	Pork	. .	4	10	a	5	8	- - 4 8 a 6 0
	Lamb	. .	6	0	a	6	6	- - 3 4 a 4 0
29th	Beef	. .	4	6	a	5	6	- - 3 4 a 4 4
	Mutton	. .	4	6	a	5	8	- - 3 8 a 4 8
	Veal	. .	5	6	a	6	0	- - 4 0 a 6 0
	Pork	. .	5	0	a	6	0	- - 5 8 a 6 0
	Lamb	. .	6	0	a	6	6	- - 3 8 a 5 4

Average price in August.

s.	d.		s.	d.
Beef	. .	5	0 $\frac{1}{2}$	- - Beef . . 4 0 $\frac{1}{2}$
Mutton	. .	5	0 $\frac{1}{4}$	- - Mutton . . 4 2
Veal	. .	5	7	- - Veal . . 4 8 $\frac{1}{2}$
Pork	. .	5	5	- - Pork . . 5 3
Lamb	. .	6	4 $\frac{1}{2}$	- - Lamb . . 4 7 $\frac{1}{2}$

	s.	d.	s.	d.	s.	d.	s.	d.			
Sept ember 5th Beef . .	4	8	a	5	8	-	3	4	a	4	4
Mutton . .	4	8	a	5	8	-	4	0	a	5	0
Veal . .	4	0	a	5	4	-	4	0	a	5	4
Pork . .	5	0	a	6	8	-	5	0	a	6	0
Lamb . .	6	0	a	6	6	-	4	4	a	5	8

Date. 1808.	SMITHFIELD.				NEWOATE & LEADENHALL.			
	Price sold at, live meat.				Price sold at, the carcase.			
	s.	d.	s.	d.	s.	d.	s.	d.
12th Beef . .	4	6	a	5 4	-	3 4	a	4 4
Mutton . .	4	6	a	5 6	-	4 0	a	4 8
Veal . .	5	0	a	6 0	-	4 0	a	5 0
Pork . .	5	0	a	6 0	-	5 4	a	6 4
Lamb . .	5	0	a	6 6	-	4 4	a	5 4
19th Beef . .	4	6	a	5 6	-	3 4	a	4 4
Mutton . .	4	6	a	5 6	-	3 8	a	4 8
Veal . .	5	0	a	6 0	-	3 8	a	5 4
Pork . .	5	0	a	6 0	-	5 0	a	6 4
Lamb . .	5	0	a	6 4	-	4 0	a	5 4
26th Beef . .	4	6	a	5 6	-	3 0	a	4 0
Mutton . .	4	6	a	5 6	-	3 4	a	4 8
Veal . .	5	0	a	6 0	-	3 8	a	6 0
Pork . .	5	0	a	6 6	-	5 0	a	6 4
Lamb . .	5	0	a	6 0	-	3 4	a	5 4

Average price in September.

s.	d.	s.	d.	s.	d.	s.	d.
Beef . .	5	0 $\frac{1}{2}$	-	-	Beef . .	3	9
Mutton . .	5	0 $\frac{1}{2}$	-	-	Mutton . .	4	3
Veal . .	5	8 $\frac{1}{2}$	-	-	Veal . .	4	7 $\frac{1}{2}$
Pork . .	5	7 $\frac{1}{2}$	-	-	Pork . .	5	8
Lamb . .	5	9 $\frac{1}{2}$	-	-	Lamb . .	4	8 $\frac{1}{2}$

		s.	d.	s.	d.		s.	d.	s.	d.				
October 3d	Beef	.	.	4	6	a	5	4	-	3	4	a	4	4
	Mutton	.	.	4	6	a	5	6	-	3	4	a	4	8
	Veal	.	.	5	0	a	6	4	-	4	0	a	6	0
	Pork	.	.	5	0	a	6	6	-	5	4	a	6	4
	Lamb	.	.	5	0	a	6	0	-	4	0	a	5	4
10th	Beef	.	.	4	8	a	5	6	-	2	8	a	3	10
	Mutton	.	.	4	8	a	5	6	-	3	0	a	4	4
	Veal	.	.	5	4	a	6	6	-	3	0	a	5	4
	Pork	.	.	5	0	a	6	4	-	4	8	a	6	0
	Lamb	.	.	4	6	a	5	8	-	3	6	a	4	8
17th	Beef	.	.	4	8	a	5	4	-	3	2	a	4	2
	Mutton	.	.	4	6	a	5	6	-	3	0	a	4	8
	Veal	.	.	5	0	a	6	4	-	3	8	a	5	8
	Pork	.	.	5	0	a	6	6	-	4	8	a	6	0
	Lamb	.	.	4	0	a	5	6	-	3	4	a	5	0

Date, 1808.	SMITHFIELD.				NEWGATE & LEADENHALL.			
	Price sold at, live meat.				Price sold at, the carcase.			
	s.	d.	a	s. d.	s.	d.	a	s. d.
October 24th Beef . .	4	6	a	5 4 - -	4	0	a	5 4
Mutton . .	4	6	a	5 4 - -	3	0	a	4 4
Veal . .	5	0	a	6 0 - -	4	0	a	5 8
Pork . .	4	8	a	5 10 - -	5	0	a	6 0
Lamb . .	4	0	a	5 0 - -	0	0	a	0 0
31st Beef . .	4	4	a	5 4 - -	3	0	a	4 0
Mutton . .	4	4	a	5 6 - -	3	8	a	4 2
Veal . .	4	6	a	5 10 - -	3	0	a	5 0
Pork . .	5	0	a	6 0 - -	4	8	a	5 8

Average price in October.

	s.	d.				s.	d.
Beef . .	4	11½	-	-	Beef . .	3	9½
Mutton . .	4	11½	-	-	Mutton . .	3	9½
Veal . .	5	7½	-	-	Veal . .	4	6½
Pork . .	5	7	-	-	Pork . .	5	5½
Lamb . .	4	11½	-	-	Lamb . .	4	3½

	s.	d.			s.	d.		
November 7th Beef . .	4	4	a	5 0 - -	2	8	a	4 0
Mutton . .	4	6	a	5 0 - -	2	8	a	4 4
Veal . .	5	0	a	6 6 - -	3	8	a	5 4
Pork . .	5	0	a	6 0 - -	4	4	a	5 4
14th Beef . .	4	4	a	4 10 - -	3	0	a	4 0
Mutton . .	4	6	a	5 0 - -	3	0	a	4 8
Veal . .	5	0	a	6 6 - -	4	0	a	5 8
Pork . .	5	0	a	6 6 - -	4	8	a	5 8
21st Beef . .	4	6	a	5 0 - -	3	0	a	4 4
Mutton . .	4	6	a	5 2 - -	4	4	a	5 6
Veal . .	5	6	a	6 6 - -	5	0	a	6 4
Pork . .	5	0	a	6 4 - -	4	8	a	5 8
28th Beef . .	4	6	a	4 10 - -	3	0	a	4 4
Mutton . .	4	6	a	5 0 - -	2	8	a	4 4
Veal . .	5	0	a	6 6 - -	3	8	a	6 0
Pork . .	5	0	a	6 4 - -	4	8	a	6 0

Average price in November.

	s.	d.				s.	d.
Beef . .	4	8	-	-	Beef . .	3	7
Mutton . .	4	9½	-	-	Mutton . .	4	2½
Veal . .	5½	9½	-	-	Veal . .	4	11½
Pork . .	5	7½	-	-	Pork . .	5	1½

Date. 1808.	SMITHFIELD.		NEWGATE & LEADENHALL.	
	Price sold at, live meat.		Price sold at, the carcass.	
	s.	d.	s.	d.
December 5th Beef . .	4	2 a 4 10	- -	3 0 a 4 4
Mutton . .	4	4 a 5 2	- -	3 8 a 4 8
Veal . .	5	0 a 6 6	- -	4 0 a 5 8
Pork . .	5	0 a 6 0	- -	4 8 a 5 8
12th Beef . .	4	2 a 4 10	- -	3 4 a 4 4
Mutton . .	4	4 a 5 2	- -	3 0 a 4 8
Veal . .	5	0 a 6 6	- -	4 4 a 6 4
Pork . .	5	0 a 6 0	- -	4 8 a 6 0
19th Beef . .	4	6 a 5 6	- -	3 0 a 4 8
Mutton . .	4	6 a 5 4	- -	3 0 a 5 0
Veal . .	6	0 a 7 6	- -	4 0 a 6 0
Pork . .	5	0 a 6 4	- -	5 0 a 6 0
26th Beef . .	4	6 a 6 0	- -	3 4 a 5 0
Mutton . .	5	0 a 5 8	- -	3 4 a 5 4
Veal . .	7	0 a 8 0	- -	4 0 a 6 4
Pork . .	5	0 a 6 6	- -	5 0 a 6 0

Average price in December.

	s.	d.		s.	d.
Beef . .	4	9½	- -	Beef . .	3 10½
Mutton . .	4	11½	- -	Mutton . .	4 1
Veal . .	6	8½	- -	Veal . .	5 1
Pork . .	5	7½	- -	Pork . .	5 4½

The average Price for one whole Year, or 104 Market-days, for MEAT, in Smithfield Live-market; and in Newgate and Leadenhall daily Markets, called the Dead-markets, in Carcases, Quarters, and Lots; shewing the carcass Butcher's profit.—8 lb. to the stone.

	SMITHFIELD.					
Live meat.	Average per stone.			Average per pound.		
	s.	d.				d.
Beef . .	4	9½	1½	-	-	7 ½
Mutton . .	4	10½		-	-	7½ ½
Veal . .	5	10½	½	-	-	8½ ½
Pork . .	5	6	¾	-	-	8½
Lamb . .	6	3½	¾	-	-	9½ ½

NEWGATE & LEADENHALL.

Carcases.	Average per stone.		Average per pound.	
	s.	d.	s.	d.
Beef . . .	3	11 $\frac{5}{12}$	-	-
Mutton . .	4	3 $\frac{1}{2}$	-	-
Veal . . .	4	11 $\frac{3}{4}$	-	-
Pork . . .	5	1 $\frac{1}{4}$	-	-
Lamb . . .	5	3 $\frac{3}{4}$	-	-

The preceding calculations relate only to the prices at Smithfield, and the wholesale carcase prices at Newgate and Leadenhall; the cutting butcher's profit is reckoned to average 1d. per pound more to the consumer.—To shew the accuracy of the estimate, I have taken the returns of the Smithfield, Newgate, and Leadenhall market prices, with the price of the retailer, during the last week; as follow:

Date. 1809.	SMITHFIELD.				NEWGATE & LEADENHALL.			
	Price sold at,		Average price in		Price sold at,		Average price in	
	s.	d.	s.	d.	s.	d.	s.	d.
Jan 7. 28th Beef . .	3	4	5	0	3	4	4	3
Mutton . . .	4	6	5	6	3	8	5	4
Veal . . .	6	0	7	6	4	0	7	0
Pork . . .	5	0	6	6	5	4	6	4

Average Price of Meat during the Week.

	RETAIL PRICE		WHOLESALE PRICE	
	per pound.		per stone.	per pound.
Beef . . .	7 $\frac{1}{2}$	-	3	9
Mutton . .	8	-	4	6
Veal . . .	11	-	5	6
Pork . . .	10 $\frac{1}{2}$	-	5	10

From these calculations it appears that the cutting butcher's profit on beef is 2d. $\frac{2}{3}$, Mutton 1 $\frac{1}{2}$ d., Veal 2 $\frac{1}{2}$ d., Pork 1 $\frac{3}{4}$ d., per pound: but as there is a loss in every weigh, much being sold by small quantities, with great

waste in cutting up, paring, &c. while some is vended so low as from 3*d.* to 4*d.* per pound, it is not supposed he clears more than 1*d.* per pound on the average, and in hot summer months considerable losses very frequently happen.

The price of rump-steaks is 13*d.* and 14*d.* per pound; other parts from 8*d.* to 10*d.* according to the joint: it is scarcely possible, therefore, to calculate the exact profit of the cutting butcher. The prices vary so much, particularly in the metropolis, that of the hind quarter of beef some is sold at 4*d.* a pound, and some at 14*d.*; and there are perhaps twenty customers for the latter to one for the former: of mutton, legs are now sold at 9*d.*; loins, chiefly in steaks, at 9*d.* (but as there is much waste in cutting, the loin may be taken at little more than 8*d.*); shoulders and necks at 7½*d.* or 8*d.*; breasts 5*d.* and 5½*d.* per pound.

To the foregoing statements respecting the current and average prices of shambles meat, I will add some extraordinary sales of cattle and sheep intended for breed, with other matters relative to their improvement.

CATTLE.

The prices given for the stock of Mr. Fowler, of Little Rollright, in Oxfordshire, at his sale (27th March, 1791), will shew in what estimation well-bred cattle are held among the breeders of the midland counties:—

Garrick, a five-years-old bull,	was sold for	205 guineas.
Sultan, a two-ditto	ditto . . .	210
Washington, a two-ditto	ditto . . .	205
Young Sultan, a one-ditto	ditto . . .	200
a one-ditto	ditto . . .	145
a one-ditto	ditto . . .	100
Brindled Beauty, a cow	. . .	260
Washington's mother, ditto	. . .	185

In 1793, Mr. Paget retiring to a smaller farm, his highly improved stock came to the hammer, as follows:—

FIRST DAY'S SALE, November 14th, 1793.

	Guineas.
Lot 8. Short-tail, by Shakespear, bought at Mr. Fowler's	38
9. Eyebright, by a bull bred by Mr. Varnum	51
14. Strawberry, by a Dishley bull	31
16. Brindled Eyebright	35
26. Penn	35
29. Young Dandy	30
30. Brindled-Finch-Tidy	29

BULLS AND BULL-CALVES.

34. Shakespear (bred by the late Mr. Fowler), by Shakespear, off Young Nell.—Whoever buys this lot, the seller makes it a condition that he shall have the privilege of having two cows bulled by him yearly.—	400
35. A bull-calf, by lot 34	23
37. A ditto, by ditto	31
39. A ditto, by ditto	31

SECOND DAY'S SALE.

Lot 45. One three-years-old heifer	70
47. One ditto	32
48. One ditto	35
52. One ditto	35
55. One two-years-old heifer	25
57. One ditto	60
58. One ditto	84
60. One ditto	29
61. One ditto	25
64. One ditto	27

Shakespear, lot 34, was bought, as above, by a partnership in the county, and afterwards served cows at 25 guineas each.

Mr. Princep, of Croxhall, Derbyshire, but near the borders of Leicestershire, who has now perhaps the best stock of long-horned cattle in the kingdom, symmetry of form and bulk or weight united, has raised or

improved his breed from the Canley blood, having had Shakespear two seasons about the year 1784, at 80 guineas the season. In 1786, Mr. Princep had a cow slaughtered weighing 361 lb each fore quarter, and 373 lb each hind quarter, producing 126 lb of tallow, and cutting six inches thick of fat on the chine. In 1794, two oxen, bred by Mr. Princep, were fattened by the Marquis of Donnegal, at Fisherwick; these oxen, before being slaughtered, were much alike in size and condition: one of them was carefully weighed by Mr. Bowman, his lordship's steward, when the fore quarters weighed 1988 lb, the tallow 200 lb, and the hide 177 lb: this ox, at the common price of beef in the county, was worth 60*l.* or guineas. They were both slaughtered for the use of his lordship's family.—Mr. Princep, it is asserted, some time ago, declined an offer of 2000*l.* for twenty dairy cows.

Many other very capital herds of cattle are to be found in this county. Mr. Astley, of Odstone-hall, has a numerous and very superior stock of cattle; in July, 1797, Washington, a bull, and lady Washington, his dam, a cow, which cost 194*l.*, both from the Rollright sale, were in his possession, but somewhat superannuated.

In 1789, Mr. Paget had a yearling bull, which leapt at 5*l.* 5*s.* a cow; the price of letting by the season was then 50*l.* or 60*l.* in common, and to sell to 100*l.*, and upwards.

In the spring of 1792, Mr. Bakewell let a bull for 152 guineas, to be used only four months, viz. to go the 1st of May, and return home again on the 1st of September;—probably the highest price that was ever given for the hire of a bull, to be used so short a time, and at so late a season.

Sale of Mr. Tollet's Devon cattle, August 29, 1809.—

No. 1. A Devon cow and cow-calf	. . .	28 guineas.
2. A Devon cow, Mr. Roscoe	. . .	17l.
3. A ditto	. . .	20 gs.
4. A ditto, Mr. Roscoe	. . .	20 gs.
5. A ditto	. . .	13l.
6. A Devon Heifer, Mr. Roscoe	. . .	23 gs.
7. A Devon bull, 3 years old, ditto	. . .	21 gs.

On Friday, the 22d of September, 1809, the judges decided upon the respective merits and improvements of the different breeds of experimental cattle, which are as follow :—

	Stone weight of 14 lbs.	Sold for. L. s.	Weight gained. st. lb.
No. 1. Short-horned . . .	115 . . .	29 8 . . .	28 7
2. ditto . . .	104 . . .	27 0 . . .	23 0
No. 1. Hereford . . .	90 . . .	25 15 . . .	23 0
2. ditto . . .	86 . . .	25 10 . . .	20 0
No. 1. Sussex . . .	87 . . .	24 10 . . .	21 0
No. 1. Galloway . . .	76 . . .	17 15 . . .	24 7
2. ditto . . .	74 . . .	16 0 . . .	16 7
No. 1. Glamorgan. . .	81 . . .	18 0 . . .	23 0
2. ditto . . .	73 . . .	18 0 . . .	19 0
No. 1. Long-horned . . .	96 . . .	24 0 . . .	20 0
2. ditto . . .	94 . . .	22 15 . . .	16 0

SHEEP.

Sale of His Majesty's Merino sheep, in Kew-gardens, on Wednesday, the 26th of July, 1809.—

Lot 1. A full-mouthed ram, of the Paular breed, was purchased by Mr. G. H. Rose, for 35 guineas.

2. Another Paular ram, Mr. Stamford, 25 gs.

5. A Paular ram, Mr. Newland, 31 gs.

4. A broken-mouthed ram, of the Negrete breed, Mr. Cates, 43 gs.

5. A full-mouthed Paular ram, Mr. Walton, 61 gs.

6. Another Paular ram, Mr. Henry, 30 gs.

7. A Paular ram, Mr. Ingold, 32 gs.

8. A four-toothed Negrete ram, purchased by Mr. Culling Smith, 47 gs.

9. A full-mouthed Paular ram, Mr. Hawkins, 41 gs.

10. A Paular ram, Lord Carrington, 41 gs.

11. A ditto, Mr. Walton, 63 gs.

12. A four-toothed Negrete ram, Mr. Stamford, 37 gs.
13. A full-mouthed Paular ram, Lord Carrington, 40 gs.
14. A ditto ditto, Major Althorpe, 41 gs.
15. A ditto ditto, Mr Churchyard, 42 gs.
16. A four-toothed Negrete ram, Lord Gower, 40 gs.
17. A full-mouthed Paular ram, Mr. Hickman, 35 gs.
18. A ditto ditto, Mr. Sumner, 53 gs.
19. A ditto ditto, Mr. Hawkins, 50 gs.
20. A four-toothed Negrete ram, Mr. Thomas, 37 gs.
21. A full-mouthed Paular ram, Mr Green, 42 gs.
22. A ditto ditto, Mr. Willan, 75 gs.
23. A ditto ditto, Mr. Gooding, 45 gs.
24. A four-toothed Negrete ram, Mr. Warrington, 56 gs.
25. A full-mouthed Paular ram, Mr. Price, 44 gs.
26. A ditto ditto, Sir John Piggot, 50 gs.
27. A ditto ditto, Mr Thomas Strickland, 50 gs.
28. A four-toothed Negrete ram, Mr. Thomas, 44 gs.
29. A full-mouthed Paular ram, Mr. Smallpiece, 50 gs.
30. A ditto ditto, Mr. Henry King, 50 gs.
31. A ditto ditto, Mr. Smallpiece, 58 gs.
32. A four-toothed Negrete ram, Mr. Hickman, 43 gs.
33. A full-mouthed Paular ram, Lord Ducie, 51 gs.
34. A ditto ditto, Mr. Hickman, 60 gs.
35. A ditto ditto, Mr. Fane, 52 gs.
36. A four-toothed Negrete ram, Mr. Boucheret, 48 gs.
37. A full-mouthed Paular ram, Mr. Smallpiece, 47 gs.
38. A ditto ditto, Captain Thorpe, 48 gs.
39. A ditto ditto, Lord Ducie, 75 gs.
40. A four-toothed Negrete ram, Mr. King, 49 gs.

And the following ewes were sold.—

41. A full-mouthed Paular ewe, Mr. Bailey, 30 gs.
42. A ditto ditto, Mr. Willan, 32 gs.
43. A ditto Negrete ewe, Mr. Willan, 14 gs.
44. A ditto Paular ewe, Mr. Willan, 31 gs.
45. A ditto ditto, Mr. Stamford, 48 gs.
46. A ditto Negrete ewe, Mr. Stamford, 18 gs.
47. A ditto Paular ewe, Mr. Willan, 34 gs.
48. A ditto ditto, Mr. Sommerton, 23 gs.
49. A ditto Negrete ewe, Mr. Culling Smith, 25 gs.
50. A ditto Paular ewe, Mr. Strickland, 36 gs.
51. A ditto ditto, Mr. Strickland, 38 gs.
52. A ditto Negrete ewe, Mr. King, 27 gs.
53. A ditto Paular ewe, Mr. Bailey, 36 gs.
54. A ditto ditto, Mr. Culling Smith, 32 gs.

55. A full-mouthed Negrete ewe, Mr. Stamford, 32 gs.
56. A ditto Paular ewe, Mr. Churchyard, 32 gs.
57. A ditto ditto, Mr. Bailey, 33 gs.
58. A ditto Negrete ewe, Mr. King, 25 gs.
59. A ditto Paular ewe, Mr. Willan, 36 gs.
60. A ditto ditto, Mr. Hawkins, 33 gs.
61. A ditto Negrete ewe, Sir C. Talbot, 26 gs.
62. A ditto Paular ewe, Captain Thorpe, 37 gs.
63. A ditto ditto, Mr. Wooler, 37 gs.
64. A ditto Negrete ewe, Mr. Colling Smith, 27 gs.
65. A ditto Paular ewe, Mr. Mitford, 40 gs.
66. A ditto ditto, Mr. Walton, 41 gs.
67. A ditto Negrete ewe, Mr. Greve, 27 gs.
68. A ditto Paular ewe, Mr. Walton, 45 gs.
69. A ditto ditto, Mr. Atkins, 35 gs.
70. A ditto Negrete ewe, Mr. Leveston Gower, 26 gs.
71. A ditto Paular ewe, Lord Ducie, 36 gs.
72. A ditto ditto, Mr. Mitford, 45 gs.
73. A ditto Negrete ewe, Sir C. Talbot, 28 gs.
74. A ditto Paular ewe, Lord Ducie, 42 gs.
75. A ditto ditto, Mr. Goodenough, 39 gs.
76. A ditto Negrete ewe, Mr. Wandey, 21 gs.
77. A ditto Paular ewe, Mr. Boucheret, 40 gs.
78. A ditto ditto, Mr. Althorp, 46 gs.
79. A ditto Negrete ewe, Mr. Dacer, 23 gs.
80. A ditto Paular ewe, Mr. Wooler, 55 gs.
81. A ditto ditto, Major Althorp, 44 gs.
82. A ditto Negrete ewe, Mr. Culling Smith, 22 gs.
83. A ditto Paular ewe, Mr. Price, 22 gs.
84. A ditto ditto, Mr. Tower, 40 gs.
85. A ditto Negrete ewe, Mr. Willan, 27 gs.
86. A ditto Paular ewe, Lord Ducie, 37 gs.
87. A ditto ditto, Mr. Bailey, 37 gs.
88. A ditto Negrete ewe, General Gower, 26 gs.
89. A ditto Paular ewe, Sir C. Talbot, 26 gs.
90. A ditto ditto, Mr. Boucheret, 39 gs.
91. A ditto Negrete ewe, Sir C. Talbot, 20 gs.
92. A ditto Paular ewe, Mr. Mitford, 38 gs.
93. A ditto ditto, Mr. Tower, 34 gs.
94. A ditto Negrete ewe, Mr. Leveston Gower, 21 gs.
95. A ditto Paular ewe, Lord Ducie, 26 gs.
96. A ditto ditto, Lord Ducie, 38 gs.
97. A ditto Negrete ewe, Sir C. Talbot, 20 gs.
98. A ditto Paular ewe, Mr. Willan, 32 gs.

99. A full-mouthed Paular ewe, Mr. Mitford, 47 gs.
 100. A ditto Negrete ewe, Mr. Churchyard, 25 gs.

The Duke of Bedford's sale, at Woburn sheep-shearing, on Monday, the 13th of June, 1808.—

Lot No.

- 1....1 Ten South Down ewes, two years old, were knocked down to Mr. Ellman, at 42s. each.
 2....2 Ten ditto, to Sir Watkin Williams Wynne, at 42s.
 3....3 Ten South Down ewes, three years old, to Sir W. W. Wynne, at 46s.
 4....4 Ten ditto, to ditto, at 42s.
 5....5 Ten ditto, to ditto, at 44s.
 6....6 Ten ditto full-mouthed, to M. Bass, at 40s.
 7....7 Ten South Down theaves, to Sir W. W. Wynne, at 53s.
 8....1 Five Leicester ditto, to Mr. Clayton, at 34s.
 9....2 Five ditto, to Mr. Marshall, at 53s.
 10....3 Five ditto, to ditto, at 42s.
 11....4 Five ditto, to Mr. Walton, at 45s.
 12....5 Five ditto, to Lord William Russel, at 80s.
 13....6 Five ditto, to Mr. Walton, at 75s.

At Woburn sheep-shearing, Monday, June 12, 1809, the following South Down sheep were sold at the Park farm.—

Lot 1, consisting of a pen of ten South Down theaves, was knocked down to Mr. Morris, at 21 guineas.

2. A pen of ditto ditto, to Sir W. Williams Wynne, at 21 gs.
 2. Ten South Down theaves, to Mr. Latouche, at 27 guineas.
 4. A pen of ten ditto, to the same gentleman, at 46 gs.
 5. Ten South Down ewes, three years old, to Mr. Moore, at 19 gs.
 6. No. 6, ten ditto, to Sir W. W. Wynne, at 23 gs.
 7. No. 7, ten South Down ewes, full-mouthed, was purchased by Mr. Horton, for 17 gs.

Mr. Smith purchased lot 8, the same as last, 22 gs.

Lot 9, to Sir W. W. Wynne, for 25 guineas; and lot 10 to the same, at 32 gs.

On the succeeding Monday, June 19th, the under-mentioned lots were sold.—

South Down theaves, ten in each lot.

Lot 1.—20 guineas, purchased by Mr. Amyss.

2.—24 guineas - - - Mr. Rishton.

Lot 3.—25 guineas, purchased by Mr. Amyss.

4.—28 guineas - - Mr. Amyss.

5.—32 guineas.

Two-years-old Ryeland ewes, in lots of ten each.

Lot 1.—33 guineas - - Mr. Bell.

2.—27 guineas - - Mr. Denton.

3.—33 guineas - - Mr. Denton.

At the same time the following two-shear rams were let :—

No. 1.—40 guineas - to Mr. Wright.

2.—28 guineas - - Mr. Seppings.

3.—51 guineas - - Mr. Butcher.

4.—30 guineas - - Mr. Kendal.

5.—36 guineas - - Mr. Hare.

These rams were clipped the next day, when the fleeces weighed :—

	lb. oz.		lb. oz.
No. 1. clipped . . .	9 7	No. 5. clipped . . .	7 1
2. ditto . . .	2 7	6. ditto . . .	8 1
3. ditto . . .	6 7	7. ditto . . .	7 5

The weight of the wool clipped from the sheep shewn for the prize pens of ewes, ten each, was as under :—

	lb. oz.		lb. oz.
Mr. Blyth's South Down . .	27 12	Mr. Hill's wether . . .	5 3
Mr. Walker's ditto . . .	36 3	Mr. Blyth's ditto . . .	3 15
Mr. Oakes's ditto . . .	47 0	Mr. Reeve's Leicester ewes .	65 3
Mr. Reeve's ditto . . .	44 3	Mr. Reeve's Leicester we-	
Mr. Hill's ditto . . .	41 12	ther	6 8
Mr. Morris's wether . . .	3 14		

And on this day the undermentioned South Down theaves, in lots of ten, were sold :—

No.		l. s. d.
7. Lord Dundas		26 5 0
8. Mr. Amyss		38 17 0
9. Mr. Reeve		25 4 0
10. Lord Dundas		40 0 0

	L.	s.	d.
11. Mr. Saul	32	0	0
12. Mr. Forster	31	10	0
13. Lord Dundas	49	7	0

Aged South Down ewes, lot one, of ten, sold to Mr. Wilson at 17 guineas.

South Down tups were then shewn to let, the price being previously fixed, and the quantity of wool clipped, stated. Each person desirous to have any particular sheep, gave his name, and took the chance of drawing a prize ticket, which decided who was to have him.

No.	Clipped of Wool.	Price.	Hired by
5 . . .	5 2 . .	15 guineas . .	Mr. Saul.
9 . . .	4 3 . .	15 gs. . .	Not let.
11 . . .	4 5 . .	20 gs. . .	Not let.
13 . . .	5 3 . .	20 gs. . .	Mr. Dewing.
15 . . .	5 10 . .	20 gs. . .	Mr. Saul.
8 . . .	4 7 . .	25 gs. . .	Mr. Dewing.
16 . . .	6 3 . .	15 gs. . .	Mr. Rodwell.
14 . . .	4 11 . .	40 gs. . .	Mr. Mosley.
4 . . .	4 8 . .	40 gs. . .	Mr. Mottoux.
6 . . .	6 2 . .	30 gs. . .	Mr. Walton.
1 . . .	5 7 . .	40 gs. . .	Mr. E. Beck.

The following are some of the particulars of Mr. Paget's sales upon his narrowing his farming business.

Ewes belonging to Thomas Paget, Esq. sold by auction November 16, 1793.—

	Ewes.	Guineas each.	Guineas.
Lot 6 . . .	5 . .	62 . .	310 Mr. Buckley.
38 . . .	5 . .	52 . .	260 Mr. Pelkington.
37 . . .	5 . .	45 . .	225 Ditto.
5 . . .	5 . .	30 . .	150 Mr. Breddon.
17 . . .	5 . .	30 . .	150 Mr. S. Stone.
7 . . .	5 . .	29 . .	145 Mr. Bennett.
11 . . .	5 . .	25 . .	125 Ditto.
3 . . .	5 . .	22 . .	110 Mr. S. Stone.
9 . . .	5 . .	22 . .	110 Mr. Boyer.
2 . . .	5 . .	20 . .	100 Mr. Stubbins.
4 . . .	5 . .	20 . .	100 Mr. Tomelin.
14 . . .	5 . .	20 . .	100 Mr. Fryer.
15 . . .	5 . .	20 . .	100 Mr. Deverell.
18 . . .	5 . .	20 . .	100 Mr. Martin.

Lot	Ewes.	Guineas each.	Guineas.
20	5	20	100 Lord Egremont.
16	5	18	90 Mr. Wingfield.
40	5	17	85 Mr. Melaud.
12	5	16	80 Mr. Powrie.
23	5	16	80 Lord Egremont.
39	5	16	80 Lord Harborough.

By private contract before the sale.

30 ewes, at 20 guineas each, 600 guineas, Mr. Simpson.

N B. Lots 37, 38, 39, and 40, were theaves.

It is wonderful, that 130 ewes should fetch an average of twenty-five guineas each, and all of them the property of one man.

The following paragraph, which elucidates the esteemed value of this species in a very high degree, appeared in the Leicester paper.

" TO THE PRINTER.

" In your paper was lately advertised to be sold, by Mr. Boot, on the 20th and 21st of September last, the stock of Nathaniel Pierce, Esq. the sheep of the new Leicestershire sort, and the neat cattle from the best sort of the long-horned breed.

" In an advertisement of the stock of C. Cartwright, Esq. also to be sold by Mr. Boot, on the 7th instant, it is said, the neat cattle are of the best sort of the short-horned breed, and the sheep of the true Lincolnshire sort descended from rams bred by Charles Chaplain, Esq. and Mr. Bartholomew.

Produce of each sale, with the difference.

	At Mr. Pierce's sale.	Mr. Cartwright's.	Difference.
	<i>L. s. d.</i>	<i>L. s. d.</i>	<i>L. s. d.</i>
" Best score of ewes . . .	166 19 0	27 0 0	139 19 0
" Ditto wethers . . .	50 11 6	29 0 0	21 11 6
" One bull and 4 cows . . .	331 5 6	38 15 0	292 10 6
" Bull-calf (10 days old) out of " one of the cows, 42l.			
" Three yearling heifers . . .	63 0 0	8 8 0	54 12 0
	<hr/> 611 16 0	<hr/> 103 3 0	<hr/> 508 13 0

Sale of breeding and shearing ewes, and rams, the property of John Wingfield, Esq. sold by auction by Mr. Boot, on the premises at Pickwell, Leicestershire, in June and September, 1807.

	L.
Forty rams sold in June made upwards of	600
One lot of ewes sold at 12 guineas each.	
200 ewes and theaves, averaged 5 guineas each	1050

Lord Somerville announced for sale, in July 1808, a number of Merino sheep, as under:—

"Forty-eight Merino ewes of pure blood, four ewes in each lot; six of the lots at 80 guineas each lot, and six lots at 60 guineas each lot.—The ewes are impartially classed with respect to age and quality; and with the exception of a very few ewes brought from Spain, are bred by the proprietor within the last six years. They consist therefore of young and fresh sheep, and those who first apply will be entitled to a preference in choice.—Likewise seventy ewes, Merino and Ryeland, three-quarters blood; ten ewes in each lot, at 70 guineas the lot: and eighty ditto ditto, half-blood; twenty in each lot, at 80 guineas the lot.—The sheep are now ready for delivery in their wool, or will be so without their wool, by the 25th of August, at the option of the purchaser; until which time, if they remain, the sheep will be kept on sound land of the best quality.—Purchasers of one or more lots of these ewes will, on hiring a Merino ram for the ensuing season, at the usual rate, be entitled to twenty-five per cent. discount on the price of the ewes."

Lord Porchester's sale of Merino - Ryeland sheep, which took place on Tuesday, the 13th September, 1808:

Full-mouthed Merino-Ryeland Ewes, 10 sheep in a lot.

	L.	s.	d.
Lot 1, bought by Mr. Hicks	24	0	0
2 - - - - Acland	27	0	0
3 - - - - Hicks	26	0	0
4 - - - - Hicks	26	0	0
5 - - - - Hicks	27	0	0

Four-tooth Merino-Ryeland Ewes, 10 in a lot.

6 - - - - Mr. Herbert	29	0	0
7 - - - - Anderdon	31	10	0
8 - - - - Anderdon	35	0	0
9 - - - - Hicks	28	7	0
10 - - - - Hicks	29	0	0
11 five sheep, Mr. Gooding	14	0	0

Merino-Ryeland Shearling Ewes, 10 to a lot.

			<i>L.</i>	<i>s.</i>	<i>d.</i>
Lot 12,	bought by Mr. Hicks	.	28	0	0
13	- - - Pippin	.	26	0	0
14	- - - Hicks	.	37	16	0
15	- - - Hicks	.	30	0	0
16	- - - Hicks	.	30	0	0
17	- - - Hicks	.	28	0	0

Merino Rams of the Pure Blood.

No. 1	four-tooth, Mr. Hicks	.	25	10	0
2	full-mouth - Hicks	.	14	10	0
3	ditto - Acland	.	10	10	0
4	ditto Col. Chichester	.	25	15	0
5	two-tooth, Mr. Herbert	.	16	0	0
6	ditto - Hicks	.	16	16	0
7	ditto Col. Chichester	.	18	18	0
8	ditto Mr. Herbert	.	11	11	0
9	ditto - Coffin	.	11	10	0

Besides these, some very old cast ewes, of the pure blood, were sold at from six to seven guineas each.—Lord Porchester exhibited a pen of twenty pure Merino ewes picked from his flock, which were reckoned superior to any that had been seen. His lordship was offered 400 guineas for the lot, or 50 guineas to choose one ewe; which was, however, declined, as the sheep were not for sale.

Sale of Mr. Tollett's Anglo-Merino sheep, at Swinerton, near Stone, Staffordshire, August 29, 1809:—

Ewes of the Second Merino Cross, all with the Ryeland.

No. 1	.	10 ewes	.	31	gs.	to	Mr. Sutton.
2	.	10 ditto	.	32	-	-	Ditto.
3	.	10 ditto	.	30	-	-	Mr. Spode.
4	.	10 ditto	.	30	-	-	Ditto.
5	.	10 ditto	.	29	-	-	Ditto.
6	.	10 ditto	.	33	-	-	(Anon.)
7	.	10 ditto	.	28	-	-	Mr. J. Wilkinson.
8	.	10 ditto	.	31	-	-	Sir T. Hammer.
9	.	10 ditto	.	29	-	-	Mr. J. Bailey.

Two-Shear Ewes of the Second Merino Cross.

No. 10	.	10 ewes	.	39	gs.	to	Mr. J. Wilkinson.
11	.	10 ditto	.	44	-	-	Col. Parker.
12	.	10 ditto	.	35	-	-	Mr. J. Wilkinson.
13	.	10 ditto	.	35	-	-	Ditto.

No. 14	.	10 ewes	.	39 gs.	to	Mr. Mills.
15	.	10 ditto	.	33 -	-	Mr. J. Wilkinson.
16	.	10 ditto	.	61 -	-	Mr. Rayner.
17	.	10 ditto	.	56 -	-	Mr. J. Wilkinson.
18	.	10 ditto	.	36 -	-	Mr. Bunting.
19	.	10 ditto	.	32 -	-	Mr. Clay.

Ewes of the Third Merino Cross.

No. 20	.	10 ewes	.	45 gs.	to	Mr. Bunting.
--------	---	---------	---	--------	----	--------------

Yearlings of the Third Merino Cross.

No. 21	.	6 yearlings	.	28 gs.	to	Mr. Roscoe.
22	.	6 ditto	.	35 -	-	Mr. Clayton.

Yearlings of the Fourth Merino Cross.

No. 23	.	6 yearlings	.	31 gs.	to	Mr. Roscoe.
24	.	6 ditto	.	58 -	-	Mr. Ward.

Yearlings of the Second Merino Cross.

No. 25	.	10 yearlings	.	54 gs.	to	Mr. J. Wilkinson.
26	.	10 ditto	.	41 -	-	Mr. Stubbs.
27	.	10 ditto	.	41 -	-	Mr. Stamford.
28	.	10 ditto	.	53 -	-	Lord Anson.
29	.	10 ditto	.	37 -	-	Mr. Sutton.
30	.	10 ditto	.	31 -	-	Sir T. Hanmer.
31	.	10 ditto	.	33 -	-	Mr. Holcombe.
32	.	5 ditto	.	26 -	-	Ditto.

Merino Rams.

No. 7	.	.	to Mr. North	.	.	50 guineas.
1	.	.	- - Spode	.	.	26 gs.
3	.	.	- - Wilkinson	.	.	19 gs.
5	.	.	- - Bailey	.	.	19 gs.

Mr. Ferryman says, "The late Mr. Bakewell bound himself, and his successor, Mr. Honeybourn, binds himself, not to engage nor shew his rams to any person, till the members of the society have seen them and are supplied; and not to let a ram to any person within fifty miles of Leicester for a less sum than fifty guineas; for which, and other privileges, the society pay a large annual sum: and Mr. Honeybourn, as well as every other member of the society, confine themselves not to sell nor to let their ewes at any price, nor to

shew their rams at any public fair, nor at any other place than their own houses, and that only at stated times, from the 8th of June to the 8th of July, and again from the 8th of September till the end of the season; with several other regulations of a similar tendency.

"The opposite society profess openly to disapprove of these principles, as illiberal, tending to impede the progress of universal improvement, and, of course, as injurious to the welfare of the country. There are indeed some gentlemen of liberal minds, and independent fortunes, who are above rule, and by whose assistance I am enabled to communicate these particulars, and which are interspersed in the account of the live stock of the county."

Mr. Ferryman also remarks, that "Rams are hired for the season at various prices, from one guinea, to five hundred, according to the reputation of the breeder, and the beauty and merit of the animal." It is generally understood, and believed, that the latter sum has been paid for the use of a ram from Leicester, by the late Duke of Bedford; and also by Mr. Coke, of Norfolk.

Mr. Marshal, in his "Rural Economy of the Midland Counties," states the price of ram-letting, prior to 1780, to have been from one guinea to ten for the season; in 1780, Mr. Bakewell let several at ten guineas each; from that time to 1786, Mr. Bakewell's stock rose rapidly, from ten to a hundred guineas; and that year he let two-thirds of a ram (reserving one third to himself) to two breeders, for a hundred guineas each; the entire services of the ram being rated at 300 guineas. Mr. Bakewell made that year, by letting rams only, more than 1000*l*. From thence to 1789, the prices kept rising; 400 guineas was repeatedly given. In 1789, Mr. Bakewell made 1200 guineas by three ram-brothers; 2000 of seven rams, and of his whole letting, full 3000

guineas. Six or seven other breeders made that year from 500 to 1000 guineas each; and the whole amount of ram-letting was that year about 10,000*l*.

It is asserted that Mr. Stone, of Barrow, in Leicestershire, and his brother, *bona fide*, let a ram at 400 guineas, without any deduction or drawback.

Mr. Ferryman states that Mr. Watkinson, of Woodhouse, killed three ewes, that averaged near three-fourths their weight of marketable flesh, and no unusual length of time was allowed, nor extraordinary means employed, in fattening them: he does not give the live weight, but the following dead weight of one of them:—

					lb. oz.
Carcase	.	.	.	.	144 0
Fat	.	.	.	.	15 8
Wool and Pelt	.	.	.	.	16 0
Pluck	.	.	.	.	4 8
Eutrails	.	.	.	.	10 4
Blood	.	.	.	.	6 0
Total . .					196 4

Mr. Monk gives the following particulars of a wether sheep, of the Dishley blood, bred and fattened by Mr. Burgess of Hugglescote; and adds, that Mr. Burgess was so kind as to send him a haunch of it into Devon, with the particulars of the weight of the whole sheep, as under:—

	lb.	lb.
Carcase	.	144 or 36 per quarter.
Fat	.	16½
Skin and Wool	.	18
Pluck 4¼ lb, Head 4¼	.	8½
Guts and Paunch	.	3½
Blood	.	5
Total . .		195½

The foregoing sales, &c. of cattle and sheep are given for the purpose of shewing how the idcal value of favourite breeds has risen and fallen—from the rapid advance on the Dishley sheep during Mr. Bakewell's time, till the Duke of Bedford's last sale, whose stock was bred from the highest-priced rams of that kind, and the best judges were employed to select and assist in breeding the stock; of which one lot of ewes, ten in number, sold at 33s. per head, when the price of mutton was on the average 5s. 4d. a stone of 8 lb, or 8½d. a pound; therefore this lot of ewes, if applied to the shambles, could only weigh about 46 lb the carcase, or 11½ lb a quarter, as, without doubt, they were fair butcher's meat, and the lot was sold for its real value, nothing being allowed for blood: this proves the butchers' assertion, that those sheep have been bred too fine, with too much blood, thereby coming light to the scale, to be fact. Again, it may be observed, there is one particular ewe of the Dishley breed of Mr. Wilkinson's, whose sheep are inferior to none, the carcase of which weighed but 144 lb, or 36 lb a quarter; which substantiates my own idea that many of them have been rendered too small.

Now, the Spanish sheep are become the rage, and one ewe in His Majesty's sale sold for 48 guineas, many more for nearly that sum, and the lowest price was 14 guineas. But all these high purchases are mere speculation: though they may answer, in some particular instances, to the ram-breeders, they can never produce the profit necessary to pay rent, and the incidental charges, by the sale of wool and shambles meat. When a ram-breeder gives those extravagant sums for sheep, it is with an expectation of raising the price of his own rams, as business of all kinds is, in some measure, regulated by comparison: thus, if A have given 400 guineas for a ram, then B naturally thinks if he get one equally good for 300 guineas,

the bargain must be cheap. But these prices cannot be given, in a general way, for the breeder to obtain a living profit: the use of a ram at 2*s.* 6*d.* to 5*s.* an ewe is the utmost that can be afforded, as the breeder must not expect to average more than seventy from one ram's produce, to come to the shambles. Taking the age when all the sheep are sent to market at three years, there will be but three fleeces, which at 6*d.* a pound is 18*s.* for each sheep's wool; if the carcase be 80 lb, which is the highest weight that can be allowed for many of the long-wooled breed, that, at 8½*d.* a pound, will be about 36*s.* 3*d.* each; in the whole 74*s.* 8*d.*: then, supposing an acre of land, at an expense of 30*s.*, to support one sheep for three years, there will remain 44*s.* 8*d.*, which is only about one year and a half's rent; and if we deduct 21*s.* for the getting such sheep, the gain will be reduced to 23*s.* 8*d.* at the end of three years.

During the time I have been writing this work, I have examined the different reports of counties, with various authors on the subject of the value of sheep and cattle, but I have not met with one instance of any breed of sheep being brought to fair sale at Smithfield that equalled Mr. Chapman's, of Wickham Thorp, in the year 1807: he sold 217 crocks of the Hertford breed at 5*l.* 2*s.* 11*d.* each; they must therefore have weighed about 146 lb a carcase, or 36½ lb a quarter, considering mutton at 8½*d.* per pound. Many single sheep have been raised to very high weights, but this is the greatest produce recorded, all in one man's lot. There is another instance mentioned, of forty-five old Lincoln wethers and ewes of Mr. Walter's, weighing 146 lb a carcase; but these sheep are generally raised on better land than the Hertfordshire crocks. The Gloucester seem to vie with those two kinds of sheep: there are also a few very good Berkshire. — I particularise these sorts, because they

are allowed to be the best butcher's sheep, having a regular proportion of fat and lean.

In Mr. Young's report of Hertfordshire, he calls those crooks 'Wiltshire sheep,' as they are said to be descended from that county; however, I am of opinion they have been sold at the highest prices recorded for shambles meat. Mr. Byde, of Ware-park, sold three wether sheep, three years old, for 32 guineas; they must, therefore, at 8½*d.* per pound, have weighed 299 lb the carcase, or 54½ lb a quarter. I have heard the salesmen and butchers mention many of this breed selling at similar prices. These sheep are chiefly fed on turnips and 'intseed cake; and the farmers think the barley crop pays for the expense of the cake, even when at 20 guineas a thousand; but it appears very evident to me, that sheep which sell at so high prices, whatever be their food, will always be found advantageous to the farmer and the grazier.

FINIS.

INDEX.

CATTLE.

- AGE of cattle, how to know the, 228 i.
 Argyle cattle, 140 i.
 Bakewell's (Mr.) opinion of a noted bull, 6 i.
 Beef, English, captain of a ship's opinion respecting, 157 i.
 Bedford's (Duke of) sale of cattle and sheep at the shearing 1803, 473 ii.
 Bell-paps improper in milch cows, 9 i.
 Black-leg, how to prevent the, 241 i.
 Blain, the, how to cure, 234 i.
 ---, its effect on milch cows, 11 i.
 Bones, separate weight of, in the several parts of cattle, viii i.
 Breaking steers for the yoke, 173 i.
 Breeds of cattle, i i.
 Bull, shape and perfection of the, 2 i.
 ---, proper to get fat calves, 55 i.
 Bulls should be bred from cows that are good milkers, 13 i.
 ---, rearing calves for, 30 i.
 Cabbage, good food, 204 i.
 ---, early May and York, summer food, 207 i.
 Calves, drawing, from cows, 42 i.
 ---, rearing, 26 i; 145 i.
 ---, tying at the time of suckling, 32 i.
 ---, substitutes for saving milk in rearing, 28 i.
 ---, their lying dry essential, 33 i.
 ---, gin-balls proper for, 32 i.
 ---, mode of fattening, 51 i.
 ---, hair-balls forming in the stomach of, 32 i.
 ---, rearing, at hay-stacks, 29 i.
 ---, rearing, for bulls, 30 i.
 Carrots, good winter food, 205 i.
 Cartwright's (C. esq.) cattle and sheep sale, 476 ii.
 Cattle, eighteen different breeds of, 1 i.
 ---, kinds of, 102 i; 143 i.
 ---, for droving, 138 i.
 ---, qualities of the most useful, and where to be found, 159 i.
 ---, the largest and greatest weight of, 160 i.
 ---, dead weights of, 165 i.
 ---, superiority of the Yorkshire, 169 i.
 ---, some remarks on the flesh of different breeds, 172 i.
 ---, stall-fed, ought at times to be allowed their liberty, 197 i.
 ---, feeding of, in the most profitable manner, 198 i.
 ---, opinions on the health of, stall-fed, 203 i.
 ---, some remarks on, in Craven and Lancashire, 225 i.
 ---, good effect of rain and snow falling on, 227 i.
 ---, names of, at different ages, 228 i.
 ---, how to know the age of, 228 i.
 ---, increase of, in fattening, 229 i.
 ---, proportion of land required by, to fatten, 230 i.
 ---, expense and profit of, in fattening, 231 i.
 ---, comparative advantages and disadvantages of large and small, 232 i.
 ---, a general drink for, 247 i.
 Cauliflowers, summer food, 204 i.
 Clover, red, better than tares for cattle, 207 i.
 Coats's (Mr.) famous bull, 149 i.
 ---, cow, 149 i.
 Corn, expensive food for cattle, 205 i.
 Cow, shape of the, for fattening, 4 i.
 ---, description of the milch, xxx i.

INDEX.--CATTLE.

- Cow, the fattening, description of, xxx i.
- for the dairy differing from the fattening cow, 8 i; 13 i.
- for milk, proper features of the, 9 i.
- , price of a, thirty years ago, 70 i.
- , expense of keeping a, for one week, 84 i.
- , Yorkshire, perfections of the, 156 i.
- , how to dry a, 248 i.
- Cowkeeper's practice of agreeing with dealers to find them a load of milk, 68 i.
- price in Manchester for the milk of one cow, 69 i.
- Cow-keeping, expense and profit of, 64 i.
- has proved very lucrative, 67 i.
- , a precarious business, 82 i.
- Cow-grass, similar to red clover, 207 i.
- Cows of the largest size generally give the most milk, 11 i.
- , by attention, may be bred to both fatten and milk well, 12 i.
- , sold for cag-mag, 12 i.
- , large, do not require more food than small, 14 i.
- , old and young eat nearly the same quantity, 15 i.
- , feeding at the time of milking, 17 i.
- , to prevent, holding their milk, 17 i.
- , regularity to be observed as to the time of milking, 18 i.
- , stropping, necessary, 18 i.
- should be treated with temperance, 18 i.
- , use of a rope to prevent their kicking when milking, 19 i.
- , their time of going dry, 19 i; 86 i.
- , milking, before calving, 19 i.
- , physic necessary for, before calving, 19 i.
- , treatment of, before calving, 19 i.
- should be allowed plenty of cold water after calving, 19 i.
- , their proper treatment after calving, 21 i.
- , proper time for permitting calves to suck, 21 i.
- Cows, houses proper for, to calve in, 22 i.
- , the quantity of milk they average daily, 66 i.
- , turnips given to, to preserve their health, 68 i.
- , expense and profit of twenty, 70 i.
- , experiments tried to find cheap food for, 71 i.
- , experiments tried with many kinds of food for, with a correct account of expense and produce, 73 i.
- kept high ought to be sold off, 83 i.
- , advance in the price of their food, 85 i.
- slinking their calves, 86 i.
- , town-led, put to keeping in the country, 88 i.
- in season quickly after calving, 100 i.
- , stinting, 100 i.
- , method of causing them to take the bull, 101 i.
- , drinking dirty water, urine or sope-suds, in preference to pure water, 226 i.
- , to cleanse, after calving, 247 i.
- , to cleanse, another method, 248 i.
- Cramp's (Mr.) cow, expense and produce of, 91 i.
- Crosses, opinions respecting, 145 i.
- Dry's (Mr.) ox, perfections of, 149 i.
- Decline, cows going into a, 80 i.
- Devonshire cattle, 112 i.
- Disorders in cattle, with approved remedies, 234 i; *et seq.*
- Distiller's wash, good food for cows, 71 i.
- Draught oxen, best shape of, 176 i.
- Drink, a general, for cattle, 247 i.
- Droving cattle, 138 i.
- Drying a cow, method of, 248 i.
- Dunhill's (Mr.) Yorkshire ox, 147 i.
- Dutch cattle, 107 i.
- Evans's (Rev. Mr.) convenience for feeding cows in the open air, 210 i.
- Feeding cattle, G. Grierson's, esq. experiment on, 214 i.
- in the most profitable manner, 198 i.
- Fife cattle, 140 i.

INDEX.—CATTLE.

Foddering cattle in fold-yards, Dr. Layton's remarks on, 212 i.

Fold-yards, description of, 219 i.

-----, how formed, 223 i.

----- made too large, 224 i.

Food, cheap, for cows, experiments tried to find, 71 i.

-----, experiments tried respecting, by giving cows many kinds, and a correct account of expense and produce, 73 i.

----- for cows, advance in the price of, 85 i.

-----, different breeds of cattle eat nearly the same quantity of, 164 i.

----- for stall-feeding cattle, different kinds of, 204 i; *et seq.*

-----, cattle prefer indifferent, on the ground, to better food in houses, 209 i.

Foul in the foot, means of curing, 244 i; 248 i.

Fowler's (Mr.) Rollright cattle sale, 467 ii.

Galloway cattle, 120 i.; 138 i.

Gargit in the bag, remedy for the, 245 i; 248 i.

Gargle, cure for the, 245 i; 248 i.

Grain-fed cows, objected to by graziers, 80 i.

-----, slaughtermen's opinion respecting, 81 i.

Grain-sick, remedy for the, 247 i.

Grains, mixing chopped hay with, 79 i.

----- disordering cows, 198 i.

Grass, short, the best for cattle, 34 i.

-----, mown, good food in summer, 208 i.

Grierson's (G. esq.) experiment of feeding cattle, by weighing their food, 214 i.

Handling cattle, remarks on, 149 i.

Hay, cow-keeper's reasons for feeding plentifully with, 87 i.

-----, the cheapest food for cattle, 205 i.

-----, cattle eat as much, when allowed turnips as without, 216 i.

----- and turnips consumed by Mr. Grierson's cattle, 217 i.

Hay-lofts disapproved, 192 i.

Hay-ten, method of making, 27 i.

Heaving in cattle, how to cure, 237 i.

Heifers, proper age for putting to the bull, 99 i.

Heifers, advantageous management of, intended to breed calves for stores, 101 i.

Hereford cattle, 109 i.

Hide, in handling, should feel elastic, 7 i.

Hoose, or Horst, cure for the, 240 i.

Hopping, necessary while milking, or when the cow has a sore pap, 17 i.

Horns ought to be small, 8 i.

Horst, or Hoose, cure for the, 240 i.

Houso, hot, injurious to the health of cattle, 144 i.

Houses proper for cows to calve in, 22 i.

----- for cattle, directions for building, 190 i.

----- for oxen, ought to be formed differently from those for cows, 192 i.

-----, cattle kept in, much inclined to scurvy, 213 i.

Housing cattle at straw, author's experiments concerning, 211 i.

Howard's (Mr.) mode of treating his cow, 378 i.

Irish cattle, 131 i.

Kendal (Mr.) extract from the register of, shewing the expenses and profits of cow-keeping, 64 i.

Kyloes, or Scotch cattle, 121 i.

Land for cows, price of, thirty years since, 70 i.

Layton's (Dr.) remarks on foddering cattle in fold-yards, 212 i.

Lintseed cake, expense of, 202 i.

Lintseed jelly, directions how to make and apply, 199 i.

-----, expense of, 201 i.

Long-horned cattle, 102 i.; 143 i.

-----, bred by Messrs. Princeps, Munday, and Astley, 152 i.

Lucern, good food, 207 i.

Maw-bound, cure for the, 248 i.

Milch cow, proper features of the, 9 i.

Milch cows having the greatest show on the fore part of the udder the best, 11 i.

----- living to the age of 30 years, 81 i.

Milk, greatest quantity generally given by the largest cows, 11 i.

-----, substitutes for saving, in rearing calves, 28 i.

-----, the quantity of, one cow will average daily, 66 i.

INDEX.--CATTLE.

- Milk of twenty cows, price allowed for the, in Manchester, 69 i.
- , price of, 30 years ago, 70 i.
- , quantity of, obtained by men who keep a small number of cows, 90 i.
- , the greatest quantity of, and butter, given by any cow, 96 i.
- Milk-fever, prevention of the, 99 i.
- Moran, remedy for the, 247 i.
- Munday's (Mr.) noted fat cattle, 155 i.
- cow giving 14 lbs of butter in a week, 155 i.
- Names of cattle at different ages, 228 i.
- Northland cattle, 141 i.
- Ofal, remarks on, 165 i.
- Ox, the Yorkshire, some remarks on, 27 i.; 147 i.
- , Yorkshire, particulars of his weight and value, 151 i.
- Oxen, best shape of, for draught, 176 i.
- , author's opinion on the profit of working, 177 i.
- , proof given that those worked do not produce more shambles meat, 179 i.
- , inconveniences and unpleasantness of working, during hot weather, 181 i.
- , said to be improper for carting in hilly countries, 182 i.
- , reasons given that they may be rendered useful in such places, 183 i.
- , working, discontinued by the late Duke of Bedford, 184 i.
- , preference given to working them double, 185 i.
- , large, pay the best to draw, 185 i.
- , opinion of the ancients respecting the proper shape of, to work, 189 i.
- , houses for, ought to be formed differently from those for cows, 192 i.
- , their increase per day, 235 i.
- Pager's (Mr.) cattle sale, 468 ii.
- Paps of milch cows, proper shape of the, 11 i.
- Potatoes, price of, for cows, 68 i.
- Pot-liquor, its use in rearing calves, 27 i.
- Princep's (Mr.) bull, 153 i.
- noted cattle, price offered for, 468 ii.
- Purging or Skitting, method of cure, 241 i.
- Red clover better than tares for cattle, 207 i.
- Scotch cattle, or Kyloes, 121 i.
- Scrutton (Mr. J.), letter by, on the practice of feeding cattle with lintseed jelly, 200 i.
- Scurvy, cause of, in cattle, 227 i.
- , cattle kept in houses, very subject to, 213 i.
- Shetland cattle, 130 i.
- Short-horned or Yorkshire cattle, remarks on their fattening, 158 i.
- Skye or Western, 140 i.
- Stinking calves, 86 i.
- Staling blood, how to cure, 242 i.
- Stall-feeding elucidated, 207 i.
- Steers, breaking, for the yoke, 175 i.
- Stunting cows, 100 i.
- Strickland's (Mr.) cow, remarks on, 163 i.
- Suffolk duns, 118 i.
- Sussex cattle, 112 i.
- Tail-worm, remedy for the, 243 i.
- Tares, summer food, price of, 206 i.
- Teeswater or Yorkshire cattle, 102 i.
- Tindale's (Mr.), of Ureby, in Lincolnshire, noted cattle, 146 i.
- Tollet's (Mr.) Devon cattle sale, 470 ii.
- Turnips, given to cows, to preserve their health, 68 i.
- , price of, for cows, 68 i.
- , the quantity of, given to a cow, 69 i.
- , expense of, in feeding cattle, 204 i.
- no saving of hay, 216 i.
- and hay eaten at separate times by Mr. Grierson's cattle, 217 i.
- Udder, skin of the, 9 i.
- Warren's (Mr.) opinion concerning the average proportion of milk given by cows, 89 i.
- Wellan's (Mr.) opinion respecting the average quantity of milk given by cows, 89 i.
- profit on a cow, 157 i.

INDEX.—SHEEP.

Welsh cattle, 135 i.

Yellows, remedy for the, 246 i.

Yoke and hoops recommended, 173 i.

Yorkshire polled cattle, 101 i.

----- cow, perfections of the, 156 i.

Yorkshire or Teeswater cattle, 102 i.

----- or short-horned cattle, remarks on their fattening, 158 i.

----- cattle, their superiority, 169 i.

SHEEP.

AGE of sheep, how to know the, 303 i.

Arsenic-water, its use for lambs, 47 ii.

Author's tour through several counties to examine the stock, 309 i.

Bakewell's (Mr.) bred of sheep, at what time proper and advantageous to the country, 307 i.

----- idea, that his sheep ate less than other breeds, confuted, vii i.

----- introduction of tensors to ewes, 276 i.

----- reprobated the practice of trimming rams, 283 i.

----- rapid advance on the price of rams, 306 i.

----- opinion, that his sheep were suited to all soils, erroneous, 354 i.

----- pastures small, 384 i.

----- contract with the Society, 479 ii.

Bastard lambs, method of putting them to ewes, 283 i.

Bath (marquis of), his experiment on folding six kinds of sheep, 368 i.

Bells, use of, to sheep, 379 i.

Black-leg, remarks on the disorder so called, 431 i.

Bone in sheep, weight of, in the separate parts, according to flesh, x i.

Branding sheep, 46 ii.

Breeder, anecdote of a, preferring small sheep, 342 i.

Breeding, good nurses essential for, 268 i.

-----, keep should be considered in choosing sheep for, 270 i.

Byde's (Mr.) Hertford sheep, great value of, 463 ii.

Cabbages, as food for sheep, remarks on, 402 i.

Cartwright's (C. esq.) sheep and cattle sale, 476 ii.

Castrating lambs, directions for the operation, 287 i.

Chaplin and Bakewell (Messrs.) contest between, in the production of wool, 6 ii.

Chapman's (Mr.) Hertford sheep, their real value at Smithfield market, 483 ii.

Clothing sheep, author's remarks on, 395 i.

Cole, feeding sheep on, 348 i.

Cutting sheep, French opinion concerning, 374 i.

Crosses of short and long woolled sheep, author's remarks on, 335 i.

Crossing, advantages of, 294 i.

Dishley, the former and present method of shewing the rams and other stock at, 281 i.

----- breed, author's opinion of the late supposed improvement in the, 316 i.

----- and Pennestone sheep, contrast between, 356 i.

----- sheep, remarks on their decline in value and decrease in weight, 482 ii.

Disorders incident to sheep, with methods of cure, 403 i; *et seq.*

Dogs torment sheep, 383 i.

Dorset ewe, generally in season for the ram in June, 273 i.

----- sheep, taken into Yorkshire, not found to answer, 372 i.

INDEX.—SHEEP.

- Ewes, preparing, for the ram, 271 i.
 . . . , times of putting, to the ram, 272 i; *et seq.*
 . . . , number of, proper for one ram, 276 i.
 . . . , time necessary for them to remain with rams, 277 i.
 . . . , author's experience of different kinds of, for fat lamb, 298 i.
 . . . of the Northumberland breed afford the greatest profit, 299 i.
 . . . , proper treatment of, when yearlings, and modes of affording assistance if necessary, 433 i.
 . . . injured in yearling, proper applications for, 436 i.
- Fold observations and remarks, 360 i.
 . . . (Turnip), proportionate size of the, to be regarded, 392 i.
 Folding, regular loss of sheep by, 380 i.
 Folding sheep, author's trial of, 360 i.
 improper, 361 i; 379 i.
 does not produce more abundant crops, 362 i.
 , great loss sustained by Mr. Wright from, 363 i.
 in summer good, in winter bad, 364 i.
 , said by Dorset farmers to be healthful, 365 i.
 , experiment made by the Marquis of Bath on, 368 i.
 , Dorset and South Downs, at Lord Shaftsbury's, 370 i.
 , elucidated by Mr. Lucecock, 379 i.
 , author's opinion as to the first cause of, 386 i.
 in open fields, motives for, 386 i.
 , injurious to land, 367 i.
 Food, flavour of meat depends on, 253 i.
 . . . , experiment tried by weighing, for two different kinds of sheep, 343 i.
 . . . , expense of keeping sheep one day on different, 391 i.
 Foot-rot, cause and cure, 407 i.
- Galling, or Fly-beating, means of preventing, 432 i.
 Giddy, or Turn, cause and cure, 412 i.
- Gloucester sheep, great weight of, 331 i.
 , three very large wethers, price sold at, 333 i.
 Godfrey's (Mr.) Todd-bill, 19 ii.
 Green-skit, cause and cure, 410 i.
- Handling sheep, opinion of a London butcher concerning—a rebuke to Mr. Walton, 280 i.
 Heath or Mountain sheep improper for turnip feed, 356 i.
 Hertford sheep, a trial of, in the county in Lincoln, 357 i.
 Housing sheep, 373 i.
 author's experience of, in Ireland, 376 i.
 , Mr. Lucecock's remarks on, 373 i.
 , contrary to nature, 379 i.
 , renders the wool finer, 14 ii.
- Irish long-wooled hogs, great profit of, on turnips, 360 i.
- Keep, should be regarded, in choosing sheep for breeding, 270 i.
 Kent and Leicester sheep, trial between, 349 i.
- Lamb (Fat), author's experience of different kinds of ewes for, 298 i.
 Lambs, time and weather suitable for castrating, 267 i.
 . . . , proper time to wean, 290 i.
 . . . , weeding turnips, profit thence arising, 291 i.
 . . . , coming wrong, delivering them with safety, 435 i.
 . . . , shearing 48 ii.
 . . . (Bastard) method of putting them to ewes, 283 i.
- Lord, improvement of, by sheep, by the different methods, 362 i.
- Leicester sheep (New), author's opinion in regard to the present stock of, 283 i.
 , defects discovered in the, 311 i.
 , author's opinion in regard to the late improved form of, 316 i.
- Lincoln sheep, great weight of, 332 i.
 Lincolnshire wool, 9 ii.
- Long-wooled ewe, season for putting the, to the ram, 272 i.

INDEX.—SHEEP.

Luccock's (Mr.) remarks on housing sheep, 373 i.

..... remarks on folding sheep, 379 i.

..... opinions respecting wool, 16 ii.

His Majesty's Merino sheep sale, 470 ii.

Marks in sheep, how to destroy, 432 i.

Mengrins, remarks on the, 430 i.

Meat, flavour of, depends on food, 253 i.

Mercurial ointment, how to make, 415 i.

Monk's (Mr.) account of the carcase of a Dishley wether, 481 ii.

Mountain sheep, improper for turnip feed, 356 i.

Mutton, practice of paring the fat off, 328 i.

..... price sold at, 333 i.

Names of sheep, 302 i.

Naven show, sheep exhibited at, 400 i.

New Leicester sheep, author's opinion respecting the present stock of, 283 i.

..... defects discovered in the, 311 i.

..... author's opinion as to the late improved form of, 316 i.

Northumberland breed of ewes afford the greatest profit, 299 i.

Offal of sheep elucidated, 330 i.

..... of many kinds of sheep, comparison of the, 317 i.

Paget's (Mr.) sheep sale, 475 ii.

Pasture, changing sheep from their wonted, improper, 381 i.

Pastures, large, 383 i.

..... small, preferable, 383 i;

..... in Lincolnshire, keeping 10 sheep an acre, 385 i.

Pasturing sheep, and treating them in the most profitable manner in every situation, 381 i.

Pasturing in Lincolnshire, the method of, recommended, 382 i.

Pelts (thin) liable to gall, 304 i.

..... splitting, 49 ii.

..... number of, produced in this country, estimated, 52 ii.

Forchester's (Lord) Merino and Ryel land sheep sale, 477 ii.

Ram, description of the, 255 i.

..... wool of the, described, 259 i.

..... number of ewes proper for a, 276 i.

Rams ought not to have so fine features as ewes, 263 i.

..... choice of, to suit the ewes, 269 i.

..... necessity of examining, before being put to ewes, 274 i.

..... hauging one stone, and sometimes none, 275 i.

..... should be raddled, to mark the ewes, 275 i.

..... time necessary for them to remain with ewes, 277 i.

..... practice of fattening, for show, 277 i.

..... putting jackets on, to improve their appearance, 278 i.

..... the operation of twitching, 288 i.

..... living weight of, 297 i.

..... hired of Mr. Bakewell by the author, 298 i.

..... Mr. Bakewell's rapid advance on the price of, 306 i.

Red-water, or Resp, cause and cure, 403 i.

Rickets, remarks on the, 430 i.

Rot in sheep, remarks on the cause of, 417 i.

Rubbers, remarks on the affection so called, 431 i.

Sayle's (Mr.) sheep, great increase of, in a given time, 353 i.

Shaftsbury's (Lord), Dorset and South Down's sheep foldcd at, 370 i.

Scab, some remarks on the, and cure, 413 i.

Shearing sheep, 45 ii.

..... lambs, 48 ii.

Sheep, 37 different kinds of, 249 i.

..... average and greatest weight of, 249 i.

..... age of, when killed, 249 i.

..... perfections and imperfections of, according to the salesmen and butchers, 254 i.

..... author's means of obtaining information respecting the proper make and form of, 263 i.

..... termed large in a small compass, obtained by crossing, 294 i.

INDEX.—SHEEP.

- Sheep, the largest ever recorded, fed chiefly on sow-thistles, 300 i.
 names of, 302 i.
 how to know the age of, 303 i.
 experiments on different kinds of, the weight of the heads, scrags, and necks, and proportion of bone to flesh, 330 i.
 of different kinds, their height, length, &c. 332 i.
 (Prize), at the Smithfield club, remarks on some of the, 336 i.
 trial between Kent and Leicester, fattening, 349 i.
 lying on hay or straw injurious to, 377 i.
 loss of, by folding, 380 i.
 keeping many, in one lot, a bad practice, 381 i.
 number of, pastured on one acre of middling land, 386 i.
 expense of keeping a, daily, on different food, 390 i.
 qualities of various breeds, 1 ii.
 washing, 44 ii.
 shearing, 45 ii.
 branding, 46 ii.
 remarks on the real value of, independent on speculation, 482 i.
 Sheltering sheep injurious to them in winter, 375 i.
 Shepherds and dogs tormentors to sheep, 335 i.
 (Dorset), never cut the ewes' tails, 273 i.
 (Foreign) afford no information to the English shepherd, 375 i.
 Short-wooled ewe, taking the ram in April, 272 i.
 Skit, green, cause and cure, 410 i.
 white, 411 i.
 Smithfield club, remarks on some of the prize sheep at the, 336 i.
 Somerville's (Lord) Merino sheep sale, 477 i.
 wool, 42 ii.
 Sow-thistles, good feed for sheep, 300 i.
 Stock, author's tour through several counties to examine the, 309 i.
 Swedish turnips, feeding sheep on, 348 i.
 Tails (ewes') not cut by the Dorset shepherd, 273 i.
 Tares, given to sheep, value of, per acre, 402 i.
 Teasers, Mr. Bakewell's introduction of, to ewes, 276 i.
 Teeswater wool, 8 ii.
 Tobacco-water, how to make, 416 i.
 Todd-bill, Mr. Godfrey's, 19 ii.
 Toller's (Mr.) Anglo-Merino sheep sale, 478 ii.
 Trimming rams, Mr. Bakewell repudiated the practice of, 283 i.
 Turnip-feed improper for heath or mountain sheep, 356 i.
 Turnip-fold, proportionate size of the, to be regarded, 392 i.
 Turnips, quantity of, consumed by one sheep per day, 387 i; 399 i.
 a good crop of, ought to keep 20 sheep an acre, 387 i; 389 i.
 carrying, off the land, not found to answer, 387 i; 397 i.
 great waste of, by folding with one flock, 388 i.
 weight of, on an acre, 389 i.
 weight of, on a square yard, 390 i.
 Yorkshire jobber's opinion respecting the size of, 392 i.
 size of, considered, 393 i.
 author's opinion of the most fattening, 394 i.
 author's experiments on feeding sheep with, 395 i.
 cost of one sheep at, for the winter, 395 i.
 expense of carting an acre of, 401 i.
 giving hay to sheep at, elucidated, 401 i.
 (Swedish), feeding sheep on, 348 i.
 Twitching rams, method of, 288 i.
 Wall (Mr.), of Boothby, defects in his celebrated stock of rams, 312 i.
 Walters (Mr.), of Market Deeping, very great weight and price of sheep belonging to, 341 i.
 Walton (Mr.), London butcher's rebuke to, in regard to handling sheep, 280 i.
 Washing sheep, 44 ii.
 Watkinson's (Mr.) account of the carcass, offal, &c. of one new Leicester ewe, 481 ii.
 Weaning lambs, 290 i.

INDEX.—HORSES.

- Welsh cwe, great weight of sheep bred from a, 301 i.
- Westear's (Mr.) farm, comprising large pastures, 383 i.
- White-skit, cause and cure, 411 i.
- Wicklow sheep, author's experience on same, pasturing, 357 i.
-, great increase of, on proper food, in a given time, 359 i.
- Wingfield's (J. esq.) sheep sale, 477 ii.
- Wool, opinions as to heavy, occasioning poor carcasses, 310 i.
-, Mr. Luccock's remark, that what injures the health of sheep lessens the value of the fleece, 377 i.
-, long and short, average and greatest weight of, 2 ii.
-, Messrs. Chaplin and Bakewell's contest in the production of, 6 ii.
-, author's recommendation of an inspector of, 7 ii.
-, superior advantages derived from, when wrought into worsted goods, 10 ii.
-, trial of a cross of Spanish and Dorset sheep for the improvement of, 12 i.
- Wool, number of fleeces on an acre, 12 ii.
-, rendered finer by housing sheep, 14 ii.
-, Mr. Luccock's opinions respecting, 16 ii.
-, qualities required in, 37 ii.
-, effect of the card on, 39 ii.
-, Lord Somerville's, 42 ii.
- (Felting), some observations on, 40 ii.
-, Lincolnshire, 9 ii.
- (Short), different species of sheep producing, 19 ii.
-, Teeswater, 8 ii.
- Wool-fairs, criticism on, 25 ii.
- Worms in sheep's heads, 432 i.
- Wright (Mr.), great loss sustained by, from folding sheep, 363 i.
- Yeanning, proper method of treating ewes at that time, and affording assistance when necessary, 433 i.
-, great losses sustained at that time—cause and prevention, 433 i.
-, proper applications for ewes injured in, 436 i.

HORSES.

- AGE of horses, indicated by the renewal of their teeth, 143 ii.
- Bakewell's (Mr.) stallion, shewn to his majesty, anecdote concerning, 125 ii.
- Bay coach-horse, some imperfections in the, 108 ii.
- Blood-spavin, description of the, and methods of cure, 208 ii.
- Bone-spavin, application for the, and method of cure, 206 ii.
- Breaking-horses, 78 ii.
- Breeding-mares, stable used for, 62 ii.
- Broken-back, thought incurable, 197 ii.
- Brood-mares, warm stable improper for, 63 ii.
-, necessary observations in the choice of, 93 ii.
- Castrating colts, 74 ii.
- Chafe in the fore-bows, cause of, and cure, 197 ii.
- Chaff, &c. expense and profit of feeding with, 170 ii.
- Coach-horse (Bay), imperfections in the, 108 ii.
- Colds, how to cure, 193 ii.
- Colts, castrating, 74 ii; 76 ii.
-, twitching or cording, 74 ii.
- Corn, improper to be given to hunters when at grass, 72 ii.
-, ground, proof given that it is improper for horses at hard labour, 173 ii.
- Corns, may be eased, and sometimes cured, by proper shoeing, 185 ii.
- Cropping the ears, best mode of, 215 ii.
- Culley's (Mr.) remarks respecting the Welsh horse, 69 ii.

INDEX.—HORSES.

Curb, remedy for the, 208 ii.

Disorders incident to horses, 189 ii.
Docking the tail, different methods of,
215 ii.

Dray-horse, esteemed value of the,
and where bred in the highest per-
fection, 115 ii.

....., training of the, 117 ii.

....., proper make of the, de-
scribed, 119 ii.

....., suitable movement of the,
121 ii.

....., cross necessary to improve
the, 122 ii.

Ears, cropping the, best method of,
215 ii.

Eye, disorder of the, which causes the
lid to swell, 195 ii.

Eyes, inflammation of the, how to
cure, 195 ii.

....., bruises on the, remedy for,
195 ii.

Flying Childers, treatment of, when
young, 84 ii.

Foaling, appearances of the mare pre-
viously to, 62 ii.

Foals, weaning, 61 ii.

....., the time they ought to suck,
65 ii.

....., rearing, 65 ii.

....., treatment of, after weaning,
66 ii.

....., standing on dung injurious to,
67 ii.

....., advantage of putting them to
hay-stacks, 69 ii.

....., haltering, and learning them
to lead, 70 ii.

....., expense and profit of, 75 ii.

....., land suitable for raising them
on, 87 ii.

Food, cold, preferable in severe wea-
ther, 64 ii.

....., proper for hunters or race-
horses, 101 ii.

....., some remarks how to make the
best use of, 163 ii.

Gelding colts, time proper for, 76 ii.

Glanders, description and destructive
effects of the, 199 ii.

Gravel, symptoms of the, and cure,
210 ii.

....., in the feet, cause of the, and
remedies for, 210 ii.

Grinding corn improper for working
horses, 173 ii.

Hoofs, precautions necessary to pre-
serve them, in the horse's early age,
93 ii.

Horse-breakers, intoxication common
among, 90 ii.

Horse-flesh, applied to useful pur-
poses, 180 ii.

Horses, high-spirited, require mild
treatment, 88 ii.

....., names of, at various ages,
144 ii.

....., how to choose, 145 ii.

....., for husbandry, 147 ii.

....., how fed in America;—a meth-
od worth notice, 157 ii.

....., soiling, in summer, 160 ii.

....., feeding, in winter, shewing
the advantage of chopped straw,
&c. 168 ii.

....., proof given that they are to
be rendered as profitable as oxen,
independently of labour, 181 ii.

Hunter, requires swifter movement
than formerly, 95 ii.

....., method of learning the, to
leap, 104 ii.

....., corn given to a, when at
grass, improper, 72 ii.

Hunters, salt-marshes recommended
for, 71 ii.

....., Lord Yarborough's hunts-
man's remarks on, 99 ii.

....., food proper for, 101 ii.

Husbandry, horses for, 147 ii.

Husbandry, horses, experiments of
keeping them in the best and
cheapest manner, 155 ii.

Lampas, description of the, and cure,
196 ii.

Land suitable to raise foals on,
87 ii.

....., for training, proper situation of,
93 ii.

....., preferred to breed race-horses,
or any horse that requires wind and
movement, on, 93 ii.

Mares, proper season for covering,
60 ii.

....., indications when they are
about to foal, 62 ii.

....., stinking their foals, 64 ii.

....., proper time for smoking,
71 ii.

INDEX.—HORSES.

- Mares for breeding, necessary observations in the choice of, 93 ii.
- of advanced ages equally good to breed from, 177 ii.
- slinking foals, how to prevent, 192 ii.
- Movement of race-horses, observations on the, 92 ii.
- Names of horses at different ages, 144 ii.
- Nicking the tail, method of, 213 ii.
- Pole-evil, cause of the, and treatment, 200 ii.
- Poney, Scotch, its hardiness, 141 ii.
-, Shetland, its aptitude to fatten on the most indifferent food, 142 ii.
-, Welsh, hardier than some other horses, 138 ii.
-, Wildmoor, a nuisance on such land, 134 ii.
- Race-horse, particular remarks and observations on the, 84 ii.
-, shape of the, with remarks, 85 ii.
- Race-horses, movement of, 92 ii.
-, land preferred for breeding, 93 i.
-, food proper for, 101 ii.
- Riders, bad habits of, 90 ii.
- Ring-bone, formation of the, and mode of curing, 202 ii.
- Road-horse, description of the, 104 ii.
-, necessary qualifications for the, 105 ii.
- Roarer, description of a, 202 ii.
- Running-thrush, description of the, and cure, 198 ii.
- Salt-marshes, recommended for hunters, 71 ii.
- Scotch poney, its perfection, in being hardy, 141 ii.
- Scratches, appearance of, and prevention, 198 ii.
- Shetland poney, its aptitude to fatten on the poorest food, 142 ii.
- Shoeing, how performed to prevent lameness, and ensure ease, 93 ii.
- horses that are liable to cut or brush, 183 ii.
-, corns may be eased, and sometimes cured, by, 185 ii.
- Single-horse cars or carts, the use of, a bad practice, 172 ii.
- Slinking foals, 64 ii; 192 ii.
- Smith (Mr.), Lord Yarborough's huntsman, his remarks on hunters, 99 ii.
- Smoking mares, proper time for, 71 ii.
- Soiling horses in summer, remarks on, 102 ii; 160 ii.
-, reasons given why, not perfectly healthy, 166 ii.
- Stable used for breeding mares, 62 ii.
-, warm, improper for brood-mares, 63 ii.
- Stallion, Mr. Bakewell's, shewn to the king, anecdote respecting, 125 ii.
- Stallions, cautions to be observed in choosing, 54 ii.
-, age of, for serving mares, considered, 176 ii.
- Strains, how to cure, 192 ii.
- Strangles, cure for the, 194 ii.
- Straw, chopped, advantage of, in winter, 168 ii.
- Strutting the tail, different modes of, 215 ii.
- Suffolk-punch, strictures on his supposed perfections, 127 ii.
- Tail, method of nicking the, 213 ii.
-, modes of docking the, 215 ii.
- Teeth, the time of horses' renewing them indicates their age, 143 ii.
- Thorough-pin, description of the, and cure, 208 ii.
- Training land, and situation proper for, described, 93 ii.
- the dray-horse, 117 ii.
- Treads on the foot, consequences of, and prevention, 212 ii.
- Twitching colts, manner of, 74 ii.
- Waggon-horse, similar to the dray-horse, but smaller, 126 ii.
- Welsh horse, Mr. Cully's information concerning the, 69 ii.
- Welsh poney, the cause of its being more hardy than some other horses, 138 ii.
- Wildmoor poney, a nuisance, 134 ii.
- Wind-broken, indication of that disease, and remedy for, 197 ii.
- Wolf-teeth, method of removing, 201 ii.

INDEX.—Pigs.

MULE.

- AUTHOR'S opinion of the mule, 218 ii.
- Free-martin, or mule, its description, breed, and use, 216 ii.
- Mule, its great use in America, 219 ii.
- Mule, or free-martin, in cattle, 220 ii.
- Ridgley's (General) observations respecting the mule, 217 ii.
- Washington's (General) mules, 219 ii.

ASS, or DONKEY.

- ASS, description of the, and use, 221 ii.
-, Mr Bakewell's opinion concerning the, 221 ii.
-, employed by farmers in Dorsetshire, 221 ii.
- Ass, the best sort of, described, 222 ii.
-, breaking the, 223 ii.
-, used by ladies, 223 ii.
- Asses' milk, great value of, 223 ii.

PIGS.

- BERKSHIRE HOG, description of the, 228 ii.
-, great profit of the, 229 ii.
- Berkshire pigs, value of, in the county of Dorset, 260 ii.
-, hair of, remarks on the, 261 ii.
-, afford the best flesh, 263 ii.
-, kept by an Irish distiller, 265 ii.
-, greatly esteemed in America, 266 ii.
- Boar, description of the, his make, &c. 224 ii.
- that will produce the best stock, remarks on the, 223 ii.
- Cheshire pig, its description and weight, 246 ii.
-, one of extraordinary weight, 247 ii.
- Chinese pig, expense and produce of the, 248 ii.
-, weight gained by a, daily—expense and produce of—remarks on—Messrs Bakewell and Buckley's observations respecting—pedigree and dimensions, 255—258 ii.
- Chinese pigs, different breeds of, 250 ii.
- Cleanliness essential to the fattening of pigs, 273 ii.
- Culley's (Mr.) remarks on the pigs in Ireland, 259 ii.
- Disorders, or Diseases, in pigs, 274 ii.
- Fattening pigs, sties proper for, 272 ii.
- cleanliness is particularly necessary to be observed in, 275 ii.
- Food, the result of a trial of different breeds, during the summer, on grass, 235 ii.
- Hog, the perfect make of a, 226 ii.
- Hogs, various breeds of, described, 228 ii; *et seq.*
-, the best, where to be found, 231 ii.
- Irish pigs, Mr. Culley's remarks on, 259 ii.
-, improvement of, 259 ii.
- Kent pig, description and weight of the, 245 ii.
- Lincolnshire pig, its description and weight, 245 ii.

INDEX.—RABBITS.

- | | |
|---|---|
| <p>Mange, cure for the, 276 ii.
 Measles, described, 276 ii.</p> <p>Names of pigs at different ages and parts, 268 ii.</p> <p>Norfolk pig, weight of the, 250 ii.</p> <p>Pig, dimensions and weight of a very fat one, 241 ii.
 ..., cause of the death of one, extraordinarily fat, 242 ii.</p> <p>Pigs, management and food of, while sucking, 229 ii.
 ..., progress and profit of two, fattened, 239 ii.
 ..., comparative expense and produce of large and small, 243 ii.
 ..., infested with vermin, 268 ii.
 ..., names of, at different ages and parts, 268 ii.</p> <p>Potatoes given to fatten hogs, the result, 237 ii.</p> | <p>Rising of the lights, symptoms of the, and cure, 275 ii.</p> <p>Shropshire pig, description of the, and weight, 249 ii.</p> <p>Slut, the sporting pig, account of, <i>xxv</i> i.</p> <p>Sows, treatment of, at the time of farrowing, 233 ii.</p> <p>Sties unnecessary for store pigs in fold-yards, 270 ii.</p> <p>Sties proper for fattening, 272 ii.</p> <p>Stock, remarks on the boar that will produce the best, 233 ii.</p> <p>Stores, proper season to breed, 234 ii.</p> <p>Sussex pig, description of the, and weight, 244 ii.</p> <p>Vermin, pigs infested with, 268 ii.</p> <p>Yorkshire pig, description of the, and weight, 244 ii.</p> |
|---|---|

DEER.

- | | |
|---|---|
| <p>DEER, breeding and management of, 282 ii.</p> <p>....., names they bear at different ages, 282 ii.</p> <p>....., time of castrating, 282 ii.</p> <p>....., rutting season of, 282 ii.</p> <p>....., time of marking, 282 ii.</p> <p>....., season for killing, 283 ii.</p> | <p>Food, what, preferred by deer, 284 ii.</p> <p>....., when proper to be given, 284 ii.</p> <p>Offal, names of the, 284 ii.</p> <p>Parks, land proper for, 284 ii.</p> <p>Skins, time and manner of preparing, 283 ii.</p> |
|---|---|

GOATS.

- | | |
|--|--|
| <p>ANGORA GOAT, description of the, 291 ii.</p> <p>Chamois goat described, 290 ii.</p> <p>Flesh of goats, highly esteemed, 289 ii.</p> | <p>Goats, different kinds of, their utility and management, 285 ii.</p> <p>Iber, description of the, 289 ii.</p> <p>Milk of goats, its value, 285 ii.</p> <p>Skins, value of the, and use, 294 ii.</p> <p>Syrian goat, 292 ii.</p> |
|--|--|

RABBITS.

- | | |
|---|---|
| <p>ANGLES, use of, in warrens, 300 ii.</p> <p>Dung of rabbits, its use, 307 ii.</p> <p>Flesh, quantity of, produced by rabbits, 304 ii.</p> <p>Grey rabbit, remarks on the, 311 ii.</p> <p>Land suited to rabbits, generally of a convertible nature, 305 ii.</p> <p>Poachers, devices of, 315 ii.</p> <p>....., their modes of taking hares, 318 ii.</p> | <p>Rabbits, natural properties of, 295 ii.</p> <p>....., enemies to, 295 ii.</p> <p>....., proper number of, to be kept on a given space of land, 298 ii.</p> <p>....., produce of, 298 ii.</p> <p>....., time of killing, 298 ii.</p> <p>....., the best manner of taking, 299 ii.</p> |
|---|---|

INDEX.—BEES.

- | | |
|--|--|
| <p>Silver-spray rabbit, remarks on the, 311 ii.</p> <p>Slaughter of rabbits, mode of selling the year's, 312 ii.</p> <p>Tame rabbits, use, value, and management of, 320 ii.</p> | <p>Warrens, expense of managing, 302 ii.</p> <p>..... caution against destroying, 309 ii.</p> <p>..... objections to, 310 ii.</p> <p>Warren-banks, 296 ii.</p> |
|--|--|

POULTRY.

- | | |
|--|--|
| <p>FOWLS, their make, age, &c. 344 ii.</p> <p>....., Bantam, some remarks on, 347 ii.</p> <p>....., quantity of food consumed by large and small, 347 ii.</p> <p>....., number of eggs laid by six hens in one year, 348 ii.</p> <p>....., prices of their eggs, 350 ii.</p> <p>....., how to prevent hens sitting, 350 ii.</p> <p>....., warmth necessary for, 350 ii.</p> <p>....., hatching chickens, 353 ii.</p> <p>....., ingenious method of rearing chickens by Mrs. H. D'Oyley, 354 ii.</p> <p>....., fattening, 358 ii.</p> <p>Ducks, rearing, their use and value, 359 ii.</p> <p>....., best kinds of, 361 ii.</p> <p>....., their food, 362 ii.</p> <p>....., remarks on the wild, 363 ii.</p> <p>....., fattening, increase of, their offal, &c. 364 ii.</p> <p>Geese, most valuable kinds of, their weight, &c. 331 ii.</p> <p>....., plucking, 336 ii.</p> <p>....., not injurious to land, 338 ii.</p> <p>....., remarks on feeding, 339 ii.</p> <p>....., increase of, 340 ii.</p> <p>....., their weight, offal, &c. 341 ii.</p> <p>....., time of fattening, 343 ii.</p> <p>Guinea-fowl, natural properties of, 386 ii.</p> <p>Pea-fowl, natural properties of, 387 ii.</p> <p>Pigeons, cots for, and stocking 368 ii.</p> | <p>Pigeons, starlings in the cots, no injury to, 369 ii.</p> <p>....., formation of their nests, 370 ii.</p> <p>....., deserting cots, to be recovered, 375 ii.</p> <p>....., their fondness for salt, 372 ii.</p> <p>....., very fond of hemp-seed, 374 ii.</p> <p>....., cleanliness in cots, an essential requisite, 375 ii.</p> <p>....., cocking, the practice of, 376 ii.</p> <p>....., giving food to, in cots, improper, 378 ii.</p> <p>....., tame, nature of, 379 ii.</p> <p>....., expense and profit in keeping, 380 ii.</p> <p>....., building cots for, 382 ii.</p> <p>....., feeding, 383 ii.</p> <p>....., dung of, its use and management, 384 ii.</p> <p>....., quantity proper for an acre, 385 ii.</p> <p>Turkeys, management of, 321 ii.</p> <p>....., method of rearing, in Ireland, 324 ii.</p> <p>....., best kind of, 326 ii.</p> <p>....., weight of the wild, 329 ii.</p> <p>....., influence of the male, 329 ii.</p> <p>....., cure of the pip in, 329 ii.</p> <p>....., method of fattening and killing, 329 ii.</p> |
|--|--|

BEES.

- | | |
|--|--|
| <p>BEES, management of, 389 ii.</p> <p>....., how to remove, 404 ii.</p> <p>Colonies, means of stocking, 400 ii.</p> <p>Enemies to bees, 406 ii.</p> <p>Feeding bees, 404 ii.</p> <p>Food for bees, 396 ii.</p> <p>Hives, proper situation for, 396 ii.</p> <p>....., or Boxes, formation of, 399 ii.</p> <p>Honey, how to take, without destroying the bees, 401 ii.</p> | <p>Honey, method of extracting, from the combs, and purifying the wax, 402 ii.</p> <p>Houses for bees, method of erecting, 399 ii.</p> <p>Swarming, 397 ii.</p> <p>Swarms, method of uniting, 404 ii.</p> <p>Working-bees, 393 ii.</p> |
|--|--|

SHEPHERD'S DOG.

- | | |
|--|--|
| <p>SHEEP-DOGS, kinds of, 408 ii.
 sagacity of, 410 ii.</p> | <p>Sheep-dogs, objections to the use
 of, ill-founded, 410 ii.
 profit arising from, 411 ii.</p> |
|--|--|

FISH.

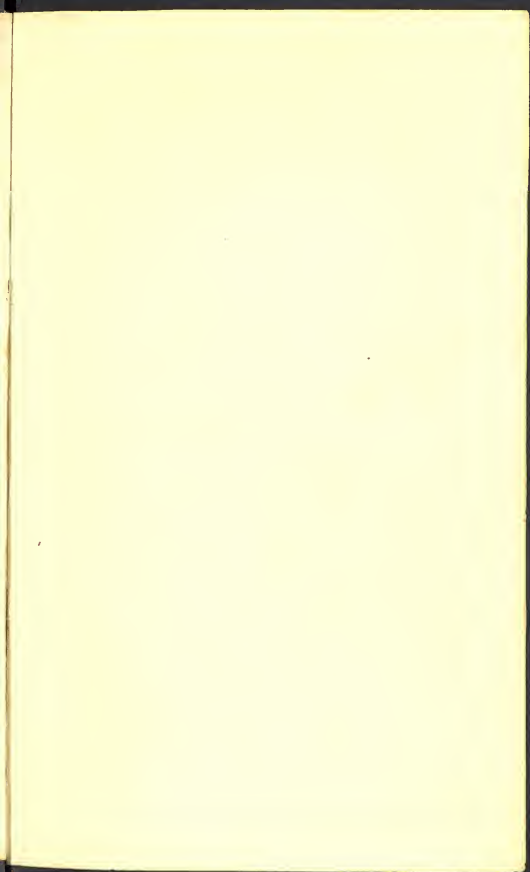
- | | |
|---|--|
| <p>CARP, 415 ii.
 Eels, 117 ii.
 Farming (Fish-), a new project,
 447 ii.
 Feeding fish, when necessary, 446 ii.
 Fish, sorts proper for ponds, 412 ii.
 management of, in frosty wea-
 ther, 441 ii.
 Pond, proper time for taking,
 443 ii.
 price of, in London, 449 ii.
 Flounders, 429 ii.
 Nets of various kinds, their use and
 management, 444 ii.
 Perch, 426 ii.</p> | <p>Pike, 421 ii.
 Pond-heads, manner of raising,
 434 ii.
 Ponds in pastures, proper form of,
 431 ii.
 large, attention necessary in
 forming, 437 ii.
 Puddling, advantages of, 435 ii.
 River-fish, 426 ii.
 Roach, 429 ii.
 Stews, use of, 446 ii.
 Stocking ponds, cautions necessary
 in, 436 ii.
 Tench, 412 ii.
 Trout, 427 ii.</p> |
|---|--|

MISCELLANEOUS.

- | | |
|--|---|
| <p>ANIMALS, proof that large and
 small, of the same species, eat
 nearly a like quantity, iii i.
 , temperance to, useful, and
 promotes their sagacity, xxiv i.
 Animals, rain and snow conducive to
 the health of, 29 i.
 , received opinion that large,
 are not good getters, unfounded,
 149 i.
 Animals, increase of—a new disco-
 very, 233 i.
 Anotta, preparation of, for use, 62 i.
 Bacon, pork proper for, 279 ii.
 Bakewell (Mr.), author's acknowlege-
 ment of his abilities, i i.
 possessed more dis-
 cernment, or cunning, than the ge-
 nerality of mankind, ii i.
 censured by salesmen
 and butchers for introducing animals
 with much fat and little lean, ii i.
 , mistake of, in regard
 to the offal of animals, iii i.
 , great merit of, in giv-
 ing rise to a spirit of investigation
 among breeders, iii i.
 , stock of, put into im-
 proper hands, iii i.</p> | <p>Black-water, experiments with, on
 grass land, 322 i.
 Bone, proportion of, in hares, rabbits,
 fowls, &c. xv i.
 , proof given that all animals
 contain a regular proportion of, to
 flesh, xvii i.
 Bones, value of, as manure, elucidated,
 xviii i.
 Butter, cleaning vessels used in mak-
 ing, 40 i.
 , making two kinds of, from
 the same milk, 41 i.
 , the English and Irish method
 of making, compared, 41 i.
 , management of, after chur-
 ning, 45 i.
 , method of potting, 46 i.
 , tubbing, 46 i.
 , the best time to pot, 47 i.
 , making, from whey, 47 i.
 , how to colour, 62 i.
 Carts (Single-horse), author's opinion
 respecting, 186 i.
 , large, comparative expense be-
 tween them and cars, 187 i.
 , Scotch, 187 i.
 Carcasses of cattle, living and dead
 sold in London in a year, 453 ii.</p> |
|--|---|

INDEX.—MISCELLANEOUS.

- Cheese, proper convenience for drying, 39 i.
 how to preserve, when dry, 54 i.
 pressing, 53 i.
 remarks on making, 57 i.
 using warm water to the milk for, recommended, 57 i.
 colouring, 59 i.
 drying, 60 i.
 how to preserve, 61 i.
 Cheshire, directions for making, 49 i.
 Cottenham, how made, 55 i.
 skim-milk, 56 i.
 slip-coat, how to make, 63 i.
 Stilton, method of making, 48 i.
 Trent-side, how made, 55 i.
 York, mode of making, 63 i.
 Churning butter, directions for, 43 i.
 Churns, different kinds of, 44 i.
 Cream, keeping, for butter, 42 i.
 Creaming milk, directions for, 42 i.
 Crosses recommended, and their utility inforced by examples, xix i.
 remarks on, and particular ones found of essential benefit, xxi i.
 proofs that the best properties may be introduced in all kinds of animals by, when judiciously managed, li i.
 Curds made from whey, 47 i.
 obtained from new milk, 47 i.
 Dairy-house, proper situation and form of the, 36 i.
 Eggs, author's means of preserving, for any length of time, 346 ii.
 pastry-cook's method of preserving, 352 ii.
 Garbage of animals, its value, viii i.
 Hams, pickle for, 280 ii.
 Horns of animals, their value, vii i.
 Indian corn, author's experience in America relating to the harvesting, 213 i.
 Live Stock, author's means of acquiring his knowledge respecting, i i.
 Manure made in summer by stall-feeding of a weak nature, 208 i.
 Meat, quantity of, consumed in one year in London, 451 ii.
 price of, at Smithfield, Newgate, and Leadenhall markets, 457 ii.
 average price of, for one whole year, or 104 market-days, in Smithfield live market, and Newgate and Leadenhall dead markets, 465 ii.
 average price of, during the week, 466 ii.
 Milk, standing in water improper, 33 i.
 proper heat at which to set it up for cheese or butter, 37 i.
 method of creaming, 42 i.
 time of keeping, 41 i.
 dealers' profit on, 71 i.
 quantity of water put to, by the London dealers, 72 i.
 Milk-vessels proper for the dairy, 42 i.
 Offal of animals, Mr. Bakewell's mistake respecting the, iii i.
 Pigs, method of killing and dressing, 276 ii.
 Plates, directions for placing the, xviii i.
 description of the, xxix i.
 Pond-mud, used as manure, improper effect of, 223 i.
 Pork, proportion of salt necessary in pickling, 278 ii.
 Potatoes, experiments on, 203 i.
 Runnet in general use, how obtained, 61 i.
 not commonly used, 61 i.
 Single-horse carts, author's opinion concerning, 186 i.
 Smithfield, head of cattle, sheep, lambs, calves, and pigs, sold at, in the year 1808, 453 ii.
 Turnips, remark shewing the inutility of preserving them in winter, 209 i.
 Urine of cattle and chamberlie, use of, 193 i; 195 i; 223 i.
 proper season and manner of using, 194 i;



UNIVERSITY COLLEGE, SOUTHAMPTON
THE LIBRARY

*This book is to be returned to the Library on or before the
last date stamped below*

Due

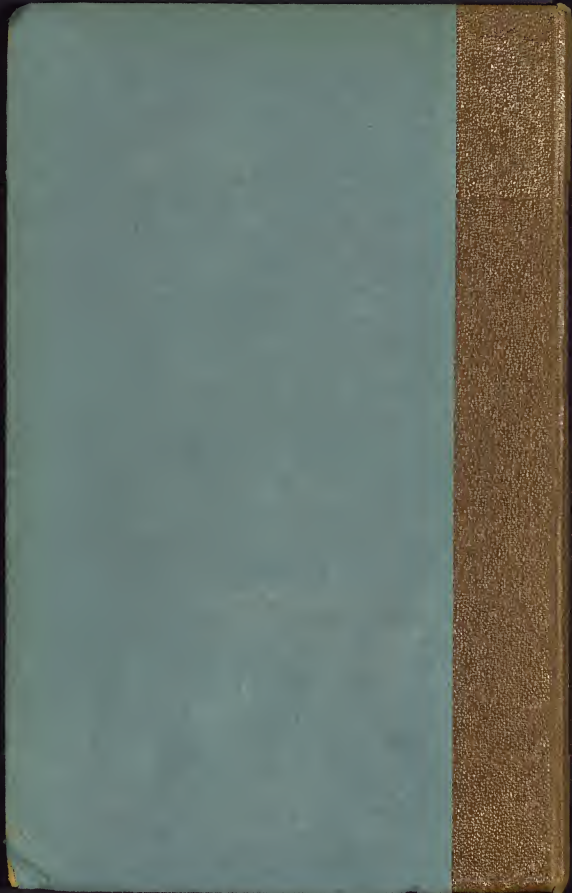
10.8.72

lib use only

Reg on Ret

1/11/72
Due 1/11/72
no renewal





LIVE
STOCK
—
PARKINSON
—
II

SF
61

1310
PARKINSON